Creation and evaluation of a student-based programme on the knowledge of mental health services and the prevention of depression, anxiety and burnout syndrome in medical students: The Sentinel Student Programme Study

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PREFACE:

As a kid, I was always curious on the ways the mind worked and why people behaved in certain manners and not others. As time went by, I began to feel even more bewildered by the demeanour of people who surrounded me until now, when I can only say that I comprehend an infinitesimal part of this question. During the last years, especially during medical school, I have encountered many times with people struggling with mental health conditions due to the stress and demands of their everyday lives but also because their surroundings did not foster a mental health friendly environment or actively helped them to reach the assistance they needed even though it was available.

This feeling of lack of support and need-to-help motivated my candidacy to become coordinator of the mental health working group of the Council of Medical Students of Catalonia (CEMCAT) in 2022. Having been elected, I initiated some steps to reach medical students through workshops and social media campaigns, but I felt it was not enough and that's when the idea of the Sentinel Student Programme arose. In collaboration with Fundació Galatea and specially with Francesc Abella, to whom I will be grateful ad infinitum for his implication and defence of the project, and members of CEMCAT, particularly Regina Franco and Maria Cid for their support, initial steps of the project began in May 2023 so that at the end of 2023 the pilot test of the project was ongoing and full speed ahead in Girona's Medical School.

I would like to thank all students who without hesitation volunteered to become sentinels and aid others in need, without them this project would not have been possible. A word of thanks also to professors who offered themselves to assist in this project and special mentions to Dr. Josep Garre, whose methodological guide has been essential for this study to develop, as well as to Dr. Domènec Serrano and Núria Rigau for having unveiled for me some of the many mysteries of the mind. In addition, I would like to acknowledge the task done by Eric Tornabell and Jordi Blanch from the IDIAP Jordi Gol in the statistical analyses of the study together with the team of CEMCAT's executive commission who during my term as mental health coordinator and then as president have given unconditional support to the project. Finally, indebtedness to my family who have taught me the arts of active listening and compassion and have stood by me in all decisions I have taken so far, letting me know I had always someone covering my back.

ABSTRACT:

Worldwide, in Spain and in Catalonia, mental health conditions are one of the most prevalent health burdens that society is struggling with. University students and especially medical students are no different from the rest, presenting even higher proportions of emotional discomfort. In addition, measures to solve this predicament from a public mental health perspective have been scarce and evidence on their effectiveness has been very heterogeneous and of poor quality, with students not knowing how to access or use this resources or services.

Therefore, it is the aim of this investigation to create and evaluate a student-based mentoring programme (Sentinel Student Programme) developed to assist students in the access to already existing mental health services, as well as to evaluate the impact on their mental health, particularly in depression, anxiety and burnout symptoms, and their self-awareness abilities hypothesising that it will not worsen the situation and will give them more insight capacity together with better knowledge of the mental health services available fostering students autonomy. To do this, a pilot test will be set up with a pre-post quasi-experimental design that will take place at Girona's School of Medicine aiming to cover all medical students between fifth and first year.

Results have proven that changes in pre-post programme favour the utility, feasibility and preliminary security of the Sentinel Student Programme with no significant changes in the pre-post prevalence of depression, anxiety and burnout symptoms and no major differences between those students who participated as sentinels and those who didn't together with a considerable increase in mental health services' knowledge. For these reasons, considering limitations linked to the study design and sample size, it can be concluded that future implementation of the Sentinel Student Programme is possible and future research is needed to prove its efficacy in the prevention of mental health disorders and the promotion of mental wellbeing.

INDEX:

LIST OF ABBREVIATIONS:

ARSLOP	Access, rectification, deletion, limitation of treatment, opposition and portability of data
AUD	Alcohol Use Disorder
AUDIT-3	Alcohol Use Disorders Identification Test-3
CEMCAT	Consell d'Estudiants de Medicina de Catalunya
CrV	Cramer's V Test
DABE	Depression, Anxiety Burnout and Empathy
DALYs	Years Lost of Full Health
DAST-10	Drug Abuse Screening Test-10
DSM-5-TR	Diagnostic and Statistical Manual of Mental Disorders Fifth Edition Text Revision
FG	Fundació Galatea
Fx	Serveis d'Atenció Psicopedagògica de la Foixarda (Fundació Drissa).
GAD-7	General Anxiety Disorder - 7
ICD-11	International Classification of Diseases - 11
LMICs	Low- and Middle-Income Countries
MAAS	Mindful Attention Awareness Scale
MHS	Mental Health Services
OSSS-3	Oslo Social Support Scale - 3
PBL	Problem-Based Learning
PHQ-9	Personal Health Questionnaire - 9
PsicoX	Serveis d'Atenció Psicològica del Col·legi Oficial de Psicòlegs de Catalunya (Psicoxarxa Solidària).
SAP UdG	Servei d'Atenció Psicològica de la Universitat de Girona
SAPEM	Servicio de Atención Psicológica para Estudiantes de Medicina
SMBM	Shirom-Melamed Burnout Measure
SSP	Sentinel Student Programme
WHO	World Health Organization
XSMG	Xarxa de Salut Mental de Girona
YLDs	Years Lived with Disability

INDEX OF FIGURES AND TABLES:

INTRODUCTION:

Mental Health in General Population:

1. Mental Health:

Defining mental health is probably one of the most arduous tasks one can try to achieve, since its definition is closely linked to the sociocultural, moral and ethical standards of the period and population being studied, making it not only a scientific predicament but also a philosophical dilemma (1). The World Health Organization (WHO) defines mental health as "*a state of mental well-being that enables people to cope with the stresses of life, to realize their abilities, to learn well and work well, and to contribute to their communities*", so not merely the absence of a mental health disorders but also a state where people feel capable of functioning and adapting adequately to their environment (2). Therefore, for the purpose of this investigation, mental health shall be considered as a spectrum of different psychological states that permit individuals to perform their everyday life whereas mental health conditions will be those states that impair this task.

2. Mental Health Conditions:

Considering the fact that delineating mental health is already a challenging exercise, establishing clear terms for mental health conditions poses no easier effort. WHO includes in the term "*mental health conditions*" mental health disorders and psychosocial disabilities. Mental health disorders would be those conditions that hinder a person's ability to function at a cognitive, emotional and/or behavioural level and that have a clinically significant impact, whilst psychosocial disabilities refer to the impairment caused in a persons' participation in society due to certain barriers, such as stigma, discrimination or exclusion, alongside a long-term mental disorder (2). The American Psychiatry Association's definition of mental health disorders does not fall far from WHO's description although, they focus more on how to define this clinical significance to differentiate normal symptomatologic expressions from pathological expressions in mental health. Nowadays this is still a discussion between mental health professionals in their everyday practice (3,4). For this reason, it is important to recognize the limitations that exist when making a diagnosis in mental health due to the subjectivity of the process, since psychiatric or psychological interviews will be the gold standard diagnostic tools used to evaluate a potential mental health disorder (1,5). In order to reduce subjectivity in this process, a part from stablishing common diagnostic criteria (6,7), numerous

psychometric tests have been developed to assist clinicians in their diagnostic task, especially in screening operations. Nevertheless, it is basic to understand that these tests can only orientate toward a diagnosis and give professionals information on the symptomatology a person is presenting at the time the test is being taken consequently, their results should never be interpreted cut off of the persons context since it could bias the diagnosis (1).

3. Epidemiology of Mental Health Disorders:

Before centring the attention on the population of this study, it is important to understand the global framework. Most recent data provided by WHO shows that globally in 2019, one out of eight persons suffered from a mental health disorder which is equivalent to a total of 970 million people in the world approximately (8). Incidence of mental health disorders has increased between 2000 and 2019 at an estimated rate of 25%, although their prevalence has remained stable at 13%, most probably because of the accompanying increase in world population during this period of study (9). When centring on the types of disorders, the most frequent groups are anxiety disorders followed by depressive disorders and developmental disorders (Figure 1). Another factor to consider is suicidal conduct. Global rate of deaths due to suicide stands in one out of 100 (10) with one death due to suicide for every 20 attempts (11). These rates reproduce similarly in Spain (12) and also in Catalan population (13).

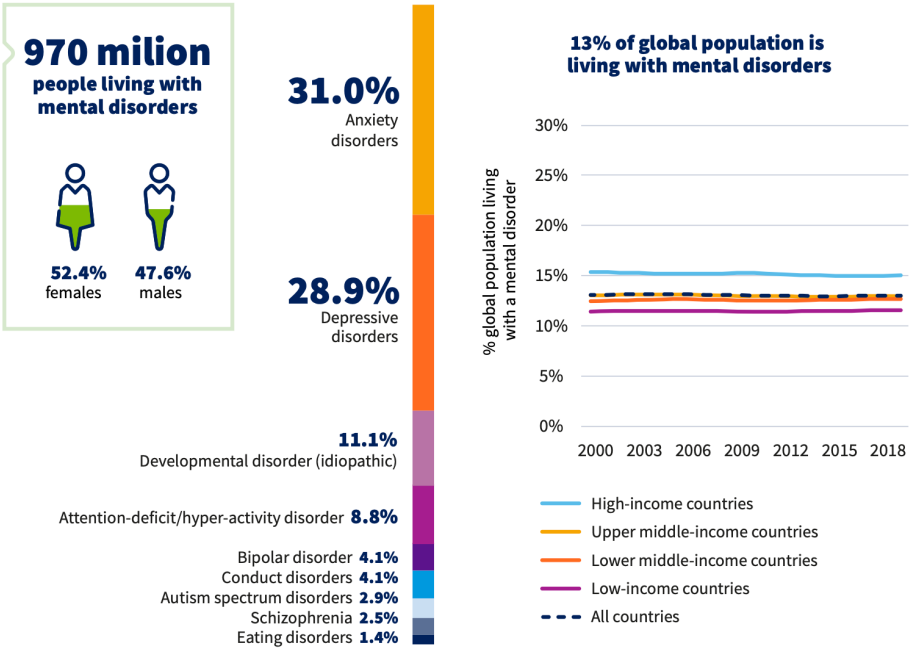

Figure 1: The global prevalence of mental health disorders in 2019 (2)

4. Burden of Mental Health Disorders:

In addition, mental health disorders do not solely affect the person on the moment of struggling with them but also burden and condition their future. Compared to other conditions, mental health disorders account for the loss of 5.1% of years lost of full health (DALYs) and are the leading cause of years lived with disability (YLDs) comprising a total of 15.6% of the global burden with anxiety and depressive disorders amongst the top ten causes of YLDs (Figure 2) (14). Shockingly, having a severe mental health conditions poses a probability of dying 10 to 20 years earlier than the general population (2).

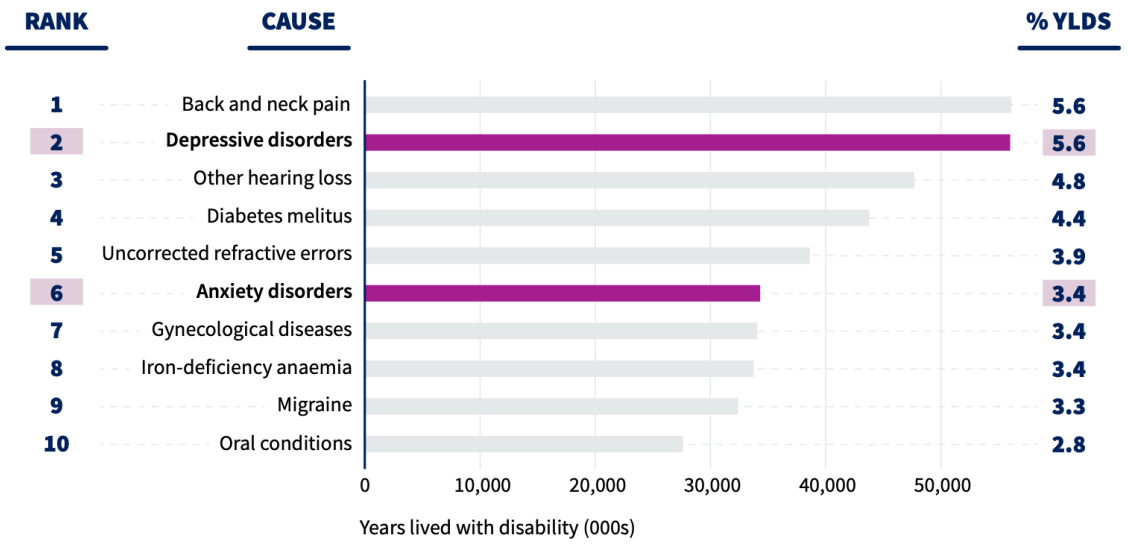

Figure 2: Top ten leading causes of global years lived with disability (YLDs), 2019 (2)

5. Determining Factors in Mental Health Disorders:

Having said that, it is of interest in mental health research to consider that these conditions distribute differently depending on several factors that play a determining role in mental health development and epidemiology and that interact dynamically between them. Elements that increase vulnerability to mental health problems can be easily grouped under the biopsychosocial model which comprise biological, psychological and social determinants. Biological liabilities include mostly genetic factors but also brain organic health and misconducts during foetal development such as substance use by the mother or oxygen deprivation during birth (15). Psychological susceptibilities cover cognitive and interpersonal factors and are very influenced by the educational and experiential development of a person, for example, factors such as harsh parenting and physical punishment (16), bullying (17) or difficulties in accessing education can hinder a person's capability to choose their own course in life (2). Social or structural agents embrace a

wide range of items that relate to a person's sociocultural, geopolitical and environmental surroundings including infrastructure, inequality, social stability and environmental quality, as well as access to basic services and commodities, security and safety, prevailing beliefs, norms and values, especially in relation to gender, ethnic group and sexuality (2) (Figure 4). Now, it's time to examine the most relevant factors at a closer look.

A. Sex, Gender and Mental Health Disorders:

Female sex has a higher prevalence of mental health disorders compared to male sex, for example, depressive and anxiety disorders are 50% more common in female than male but male are more likely to present a substance use disorder. On the other hand, while women are more likely to attempt suicide, death by suicide remains far more probable in men, with a ratio of 2:1 (2). Nevertheless, it is important to consider that this divergence could be attributed to gender discriminatory conducts such as misdiagnosis due to a prejudiced clinical view, lack of clinical evidence, power relationships between the sexes in ancient and modern society, as well as a historical miseducation on emotional regulation for women; altering the real numbers in mental health between the sexes (18). Women who have experienced intimate partner violence or sexual violence are notably more vulnerable than the rest (2).

B. Age, Family and Mental Health Disorders:

Another social group that outstands from the rest are young adults. Adolescence is a critical phase for mental development, it is a period where individuals develop their social and emotional skills, habits and coping strategies to maintain, during their lifespan, a healthy mental status. Anxiety disorders generally begin at an earlier age than depressive disorders, but they continue to become more common in adulthood. Overall, the greatest burden of disease is carried during early adulthood (Figure 3). The contribution of mental disorders to YLDs varies depending on the age of the population, with a peak of more than 23% in ages from 15 to 29 years (14).

Heritability of mental health disorders due to genetic factors has been proven for many disorders, mood and anxiety disorders within them, although not every disorder has the same heritability rate. On the other hand, while family history of mental disorders can be a risk factor due to this genetic burden, having experience with mental health disorders can also endure a stronger sense of self-awareness and a higher knowledge on the services available to seek help, acting in a potentially beneficial manner. Much like having personal history of mental disorders can make these people ask for more aid and knowing where to ask for it (19).

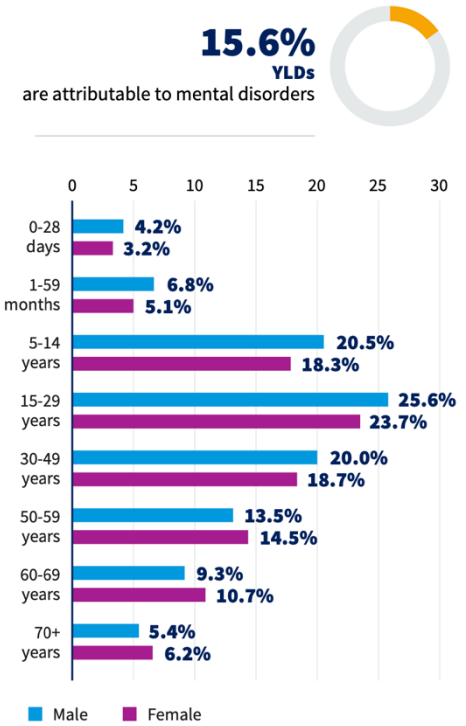

Figure 3: Proportion of all-cause YLDs attributable to mental health disorders, across the life-course, 2019 (2)

C. Socioeconomic Status and Mental Health Disorders:

Furthermore, mental health depravation is closely linked to poverty in a bidirectional relationship, starting before birth and accumulating throughout life. People living in poverty often face significant barriers, such as limited financial resources to meet basic needs, restricted access to education and employment, exposure to unsafe living conditions and difficulties in obtaining quality health care. These ongoing challenges increase their vulnerability to mental health issues. Conversely, individuals with severe mental health conditions are at a higher risk of falling into poverty due to job loss and rising healthcare costs. Additionally, social stigma and discrimination can erode their support networks, further exacerbating their financial and social hardships (20). At the same time, the availability of mental health services, trained professionals, and funding remains severely limited, falling far short of what is required, particularly in low- and middle-income countries (LMICs) (2). Paradoxically, high-income countries grouped together have the highest suicide rates (10.9 per 100 000), but this phenomenon is most likely explained by the presence of higher quality vital registration data (21).

D. Stigma in Mental Health:

Lastly, just as with physical health, it is widely recognized that individuals must take responsibility for their own well-being, and that governments can play a key role in

educating and supporting the public by encouraging behaviours such as regular exercise, healthy eating, and avoiding tobacco and alcohol. This proactive approach is equally essential for mental health (2). However, one major obstacle to seeking mental health care is the stigma surrounding mental health conditions. Those affected are often stereotyped as lazy, weak, unintelligent or difficult (22). They are also frequently misperceived as violent or dangerous, despite being more likely to face violence or self-harm than to harm others (23). In many cultures, mental health issues are not viewed as legitimate health concerns but are instead seen as character flaws, punishments for immoral behaviour or consequences of drug use or supernatural forces (24). In some cases, individuals may internalize these negative stereotypes, leading to self-stigma, where they believe and apply these harmful messages to themselves (2).

To finish this section, it is important to remark two points, first of all, these determining factors reproduce very similarly in populations closer to the one in this study, i.e., Spanish (12) and Catalan (13) populations and secondly, most people with risk factors will not develop a mental health disorder while on the other side, many people with no known risk factor can still develop a mental health condition (2). See Figure 4 for a summarized list of determinants.

6. Importance of Mental Health:

To summarize all this data, WHO professionals elaborated a list of 10 facts to support the relevance of mental health in peoples' everyday life as well as to encourage actions in local governments to improve mental heath's situation worldwide. These facts are collected in Table 1.

Table 1. 10 Facts on Mental Health (Adapted from (25))

1. Mental, neurological and substance use disorders make up 10% of the global burden of disease and 25.1% of non-fatal disease burden.
2. Around 1 in 7 of the world's adolescents have a mental disorder.
3. Depression is a common mental disorder.
4. Globally, mental disorders account for 1 in 6 years lived with disability.
5. More than 700,000 people die by suicide every year. Suicide accounts for 1 in 100 deaths globally. Suicide is the fourth leading cause of death in individuals aged 15-29 years.
6. Around 1 in 9 people in settings affected by conflict have a moderate or severe mental disorder.

7. People with severe mental disorders die 10 to 20 years earlier than the general population.
8. In low-income countries there are fewer than one mental health staff per 100,000 population, compared with more than 60 in high-income countries
9. 40% of low-income countries do not include essential medicines that have been on the WHO Model list for essential medicines for decades, such as lithium carbonate mood stabilizer for bipolar disorder.
10. The global economy loses about US$ 1 trillion per year in productivity due to depression and anxiety.

7. Mental Health Prevention and Promotion Programmes:

A. Mental Health Prevention and Promotion:

Firstly, it is important to outline that mental health, as well as health in general, can be viewed from a mental health disorder point of view or from a mental well-being perspective. When focusing on a mental disorder, the professionals' task will centre on avoiding the disorder by stablishing any preventive action that can take place, on the other hand, when their attention is drown towards well-being, professionals will be promoting mental health to generate mental well-being in the population never minding if they have a mental disorder or not. Both angles are not incompatible but rather synergic when it is time to take care of complex processes such as mental health disorders (26).

B. Mental Health Economic Impact, Funding and Research:

According to WHO, health administration and professionals should have an active role in prevention and promotion of mental health so to provide and advocate for them in collaboration with other sectors in order to build awareness and understanding of mental health, end stigma and discrimination, and lessen the need for treatment and recovery services (2). This goal set by WHO clashes head-on with reality where only an average of 2% of health budgets in the world is destined to mental health and even more concerning, from this 2%, only 20% is spent on community mental health services (27). Researchers from the World Economic Forum estimated that, in 2010, a wide range of mental health conditions cost the global economy around US$ 2.5 trillion, including US$ 1.7 trillion in lost productivity and US$ 0.8 trillion in direct care costs. These figures were projected to soar to US$ 6 trillion by 2030, factoring in increased social costs. This projected economic burden exceeds the combined costs of cancer, diabetes, and chronic respiratory diseases (28). Therefore, since mental health preventive and promoting

programmes have a high potential economic benefit for society (29), it seems reasonable to think that their implementation should be evaluated to carry out this aim although, another discouraging factor is that within global biomedical research only 4.6% of it focuses on mental health (2).

C. Public Mental Health Interventions:

All administrations of the different territorial levels previously mentioned agree on the importance of establishing public mental health programmes that should focus on the prevention and promotion of mental health, especially on most prevalent disorders, such as depression, and most hazardous conducts, such as suicide (2,12,13). In spite of this will, scientific evidence on the feasibility and effectiveness of such programmes is quite limited due to high variability of programmes, disorders aimed and presence of bias (5,30–33). A Cochrane revision on the matter of primary care delivered interventions for mental health promotion and prevention in LMICs, established that these programmes had a positive effect on mental health, reducing symptomatology as well as the prevalence of disorders however it highlights the fact that heterogeneity between programmes was high and that a more robust network of infrastructure and research would strengthen and support the implementation of these programmes. Moreover, these programmes were carried out by professionals including primary care physicians as well as community workers that took action with different prevention types such as universal prevention, which aimed at general population no matter their risk, or selective prevention which fixed on people with a higher risk, yet no peer-to-peer method was used (30). Other systematic reviews have reached similar conclusions and exposed the wide range of modalities that exist in mental health prevention and promotion programmes which most frequently included professional-taught courses, mutual help groups, increasing information availability and mental health services accessibility, self-management strategies and mindfulness-based programmes among many others. Unfortunately, all these reviews reflect that the use of non-healthcare partners in programmes is very limited just like having mental health promotion or social determinants tackling as principal objectives rather than single disease or situation prevention (5,30–33).

D. Adolescence, Young Adults and School-Based Interventions:

As signalled before, adolescence and beginning of adulthood can be a critical period in mental health development as well as corresponding to the developmental state of the

population studied in the present investigation, thus, it is of interest to the investigators to point out the interventions that have been already tested in this age group.

Das et al.'s systematic review showed that several types of communitarian interventions could be useful to improve adolescent's mental well-being as well as improving mental health conditions such as depression or anxiety. More particularly, they showed that school-based interventions with targeted groups or based on conduct-behavioural therapy reduced depressive and anxiety symptomatology (34). On the theme of suicide prevention, a Cochrane review resolved that, in a university setting, classroom-based didactic and experiential programmes were beneficial to ensure a short-term knowledge of suicide and suicide prevention (35), but not only can school-based interventions improve knowledge, they can also reduce suicide attempts and ideation (36) and prevent adult psychopathology among high-risk early-starting conduct-problem children (37). In addition, similarly structured interventions to the one that will be applied in this study, such as peer-leadership training, have reproduced these benefits, although they have mostly been tested in suicidal conduct and not in mental health services knowledge acquisition or mental health disorders improvement (38). Nevertheless, all this sources agree that evidence in the matter is of moderate quality and metanalysis is in most cases impossible to be done due to high heterogeneity between research papers (34–37).

Deepening on this peer-to-peer methodology that characterizes the last study mentioned as well as the intervention taking place in this study, researchers believe that it is important to remark that peer-to-peer support groups and mentoring programmes are one of the interventions recommended by WHO to tackle mental health conditions in learning environments such as university (2). Peer-facilitated interventions have been shown to be effective in different settings, such as sexual and reproductive health or violence, but also in mental disorders were they evidenced a reduction of depressive symptoms as well as a reduction of risk conducts related to substance use disorders (39). Furthermore, within this peer-support methodologies, Pointon-Haas et al. go further and define three different categories for it, starting by peer-led support groups which gathers students for mutual support, peer-mentoring which relies on higher-year/more experienced students to support lower-year/less experienced students and peer-learning which is based on academic objectives. They concluded that peer learning and peer mentoring were more useful in reducing anxiety and stress levels whilst peer-led support groups were the only

type actually targeting students with mental health difficulties. Despite that, the low quality of evidence made it difficult to establish definite recommendations (40).

Mental Health Amongst Spanish and Catalan University Students:

1. Definition of the Most Prevalent Disorders:

As global data has shown, anxiety and depression are the most prevalent mental health disorders worldwide as well as those with a higher burden, therefore, to delimit a narrower scope for this investigation, focus will be drawn towards these two disorders together with burnout syndrome due to its relevance in the pathogenesis of both disorders.

A. Depressive Disorders:

These disorders are included in a larger group called mood disorders, whose psychopathology basically involves a profound disturbance of emotions (41). The revised text of the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5-TR) defines depressive disorders as those which are characterised by the presence of a sad, empty or irritable mood, accompanied by somatic and cognitive changes that significantly affect the functional capacity of the individual (42). Alongside this sadness, the inability to experience pleasure, also known as anhedonia, constitutes another cardinal symptom of depression. Contrary to what it may seem, depressive symptomatology is very varied. Other psychological expressions include reverberate self-recrimination, difficulty to concentrate, social withdrawal, self-neglect, hopelessness and suicidal ideation, whilst physical manifestations may be fatigue, low energy, physical aches and pains, sleep pattern alterations, changing eating patterns, psychomotor retardation or agitation (41). All these characteristics could also be explained by many other etiopathologies, making it essential to rule out any other illness before giving a depression diagnosis.

B. Anxiety Disorders:

This type of disorders also involves an emotional dysregulation but it is more related to the spectrum of fear and stress than to mood itself. Fear is understood as a reaction to imminent danger, an essential feature in human survival mechanisms, while anxiety would refer to the apprehension toward an anticipated event. The latter is also an essential characteristic for human survival in present society for it helps people adapt and stay active and attentive to keep on and anticipate to future events, although when this ability

becomes maladaptive and instead of facilitating a person's ability to function it blocks it, anxiety as a disorder appears (43). DSM-5-TR describes anxiety disorders as those conditions which are associated with an elevated emotional anticipatory response to imminent or future real or imaginary events (44). They all include an excessively high anxiety and most of them are linked to unusual extreme fears known as "*phobias*", but their most acute expression are panic attacks. A panic attack is a sudden onset of intense fear or apprehension, often accompanied by a sense of impending doom. Physical symptoms may involve shortness of breath, heart palpitations, nausea, stomach upset, chest pain, choking sensations, dizziness, light headedness, sweating, chills or hot flashes, numbness or tingling, and trembling. Other possible symptoms include feelings of depersonalization (feeling of being outside one's body) or derealization (feeling of the world not being real) and fears of losing control, "*going crazy*" or dying (43). Again, all together a clinical picture that could resemble other pathologies that need be rejected before saying that the patient is in an ongoing panic attack or has an anxiety disorder.

C. Burnout Syndrome:

This syndrome constitutes a different paradigm, for neither DSM-5-TR or ICD-11 classify burnout syndrome as a mental disorder, although ICD-11 includes it as a "*Factor influencing health status or contact with health services*" and defines it as a chronic workplace stress related condition that is characterised by exhaustion, cynicism and a sense of ineffectiveness (7). However, since the theoretical bases of burnout are still unclear with many explanatory theories being proposed (45), some authors hypothesised that it could be part of a mood disorder spectrum together with depression (46) for it has been linked to the development of memory problems, anxiety, depression, insomnia, irritability and increased alcohol and tobacco consumption together with an increased risk of suicide (45). On the other hand, while burnout is generally linked to a work environment, evidence has shown that this concept can equally be transported to a university setting. In that case, burnout syndrome can be defined as a psychological condition resulting from prolonged exposure to stress, leading students to feel overwhelmed by their responsibilities, lose motivation for their studies, and question their ability to achieve academic success (47). Factors related to the development of burnout syndrome could be broadly described as any factor that may exacerbate stress for a long time, which can be divided into external factors such as employment situation, income or funding of studies in case of students, housing situation and social support related

variables (living abroad, being involved in a romantic relationship or the relationship with peers and the working/studying environment) and internal factors for instance stress coping mechanisms, expectations management, seeking help capacity, personality or control locus. Notwithstanding, evidence on the impact of this factors in burnout development has not yet been conclusive (45,47).

1. **Epidemiology and Determining Factors:**

These three conditions have been found to be highly prevalent among Spanish university students with 23.1% screening positive for major depressive episodes and 19.3% for general anxiety disorder in their first year of university (48). Most recent data provided by the Spanish Government shows that in 2023, 51.5% and 51% of undergraduate students screened positive for depressive and anxiety symptoms respectively (49). Ballester argues that this high prevalence of mental disorders could be attributed to multiple factors, including gender, non-heterosexual orientation, parents with low educational levels, living abroad outside the parents' house, comorbid mental disorders or undertreatment. On the other hand, Navarra-Ventura et al. described that being male, being born in a foreign country, high self-perceived support, and high self-perceived mental health were factors associated to a higher mental well-being (50). Taking into account burnout, it is difficult to establish a mean rate in Spanish university students due to the high inter-degree variability, showing not only different percentages but also different burnout profiles (47). Lastly, Lázaro-Pérez et al, found in their study of suicidal tendencies amongst Spanish university students that 9.7% of the individuals surveyed had attempted suicide and 36.7% had considered committing suicide (51).

Looking closely at a population more like the one being studied, the Interuniversity Counsel of Catalonia presented in May 2024 the results of a multicentre transversal study that aimed to describe the mental health status of university students studying in all Catalan universities, included University of Girona. This study revealed that 42% of students surveyed presented with anxiety symptoms, 46% presented with depressive symptoms and 5.1% and 4.4% expressed suicidal thoughts more than half the days in a week or nearly every day respectively. On the field of stress, 73% of Catalan students surveyed exhibited emotional fatigue related to burnout as well as 36% expressed a sense of inability to maintain control. Gender was again found to determine some differences in mental health, women were more likely to experience worst mental wellbeing, higher

symptoms of anxiety, depression and burnout, but less substance use which can also lead to alterations in mental health (52). See Figure 4 for a summarized list of determinants.

2. Community-Based Interventions in Spanish and Catalan Universities:

Spanish university students have generally felt overloaded with academic work and misinformed about all aspects regarding university, including how to access university's mental health resources, in addition to obsolete and uncomfortable facilities, obsolete or useless academic materials and methods and even a sense of neglect by universities (49). Further to this, to the authors' knowledge, there have been no evidence generated on communitarian interventions neither in Catalan nor in Spanish universities in contrast to the significant number of programmes explained in previous sections and those that will be described subsequently. Anyways, it is important to remark that in the last few years a meaningful effort has been done to put mental health at the centre of university policy making. This effort materialised in 2023 with the approval by the Spanish authorities of the new University System Act which makes it mandatory for universities to offer within their basic units health services and psychological and pedagogical support (53).

Mental Health Amongst Medical Students:

1. Epidemiology of Mental Health Among Medical Students:

Medical schools, on the other side, have shown to be no exception to these trends, exhibiting similar or even higher rates of mental disorders amongst their students. A systematic review that included studies from 43 different countries, evidenced that 27.2% of medical students screened positive for depressive symptoms and 11.1% presented with suicidal ideations; on top of that, only 15.7% of the students who reported depressive symptoms had sought treatment (54). This same review also reported a 13.5% increase in depressive symptoms after having started medical school (54), although the numbers seem to maintain stable during university years (55) or even decrease significantly (56). More recent data on this subject has shown that prevalence of depressive symptoms and suicidality is increasing among this collective up to 39% and 20.4% respectively (55).

Regarding anxiety, another meta-analysis revealed a global prevalence rate of 33.8% of medical students presenting with anxiety symptoms and again, with no significant variation between preclinical and clinical years of the degree (57). Besides, they also found these values to be considerably higher than those in the general population (57). In

relation to depression and anxiety, burnout symptoms are far from being better. A systematic review that analysed 24 studies from 16 different countries reported a burnout prevalence of 44.2% that was not affected by students' gender, although they didn't specify any longitudinal trend (58).

Summarising all, global prevalence of depressive, anxiety and burnout symptoms amongst medical students are high and worrying but only the burnout systematic review (58) included a study based in Spain and therefore a deeper analysis on this population is required.

2. Epidemiology of Mental Health Amongst Spanish and Catalan Medical Students:

In 2012, members of the Fundació Galatea published a study that revealed that 47% of fourth year Catalan medical students surveyed were at risk of psychiatric disorders compared to the non-medical students' group which only showed a risk of 8.7%. This contrasted very significantly with the fact that in the same sample, 93.7% of medical students reported a good, very good or excellent self-perceived health status, reflecting a probable lack of insight of their actual mental health (59). More recent studies in Spanish medical students analysed in detail the different aspects of this psychiatric disorders risk, encountering high rates of depressive symptoms that reached 39.1% (60) and 41% (61) of the students surveyed, state anxiety in 24.7% and trait anxiety in 21.5% of the students surveyed and burnout symptoms that extended to a total mean rate of 36.8% with a progressive increase from first year (23%) to sixth year (45%) (61). This trend was also confirmed by Galán et al. (62) and Gil-Calderón et al., who also showed an increasing trend as students moved up the degree (63).

Moreover, between 2021 and 2022, students in the school of medicine at Girona's University carried out a longitudinal observational study to set a picture of the mental health status of their companions. This study revealed baseline rates of depressive, anxiety and burnout symptoms of 17.1%, 54.5% and 24.4% respectively that increased to 24.1%, 58.0% and 31.6% in a period of five months respectively, with significant increase as degree years went by but with no differences between male and female (64).

3. Determining Factors in Medical Students' Mental Health:

Factors associated with these trends have been studied for the different disorders in medical students. Firstly, generally speaking, Langness et al. found several factors related to emotional distress which included initiating the clinical phase of medical studies, belonging to a non-male gender, having letter based evaluating systems, classes with large numbers of pupils, unsupportive faculties and not knowing how to access or not having faculty-based mental health resources (65). Other factors that could be related to distress among medical students are personality characteristics such as high neuroticism and perfectionism, although medical students have been found to hold an adaptive perfectionism that could actually help them in their career (66). Secondly, and being more precise, both depression and anxiety were closely related between each other, to the female gender and to studying in a capital city, in addition, anxiety by itself was also related to being enrolled in financial aid programs for university tuitions (67). Nonetheless, on the matter of sex and gender evidence has shown conflicting conclusions, with some authors defining higher rates in female or non-male students (61) and others finding no differences (56,64). Sexual orientation on the other hand has been shown to pose an effect on medical students' rates of mental health disorders (61).

Lastly, it is relevant to mention the effect of Problem-Based Learning (PBL) methodology since the faculty where this study took place uses it in the entirety of the Medicine degree. PBL method was clearly linked to an increased sense of satisfaction and fulfilment of expectations in medical students although, students studying with this method did have a higher prevalence of depressive symptoms but, results on the scale used to measure this symptomatology were statistically not significant compared to the traditional methodology group (68). Similar results of a non-negative impact of PBL methodology were found on the study carried out at University of Girona (64). Figure 4 summarizes all determining factors found at the different populations explored.

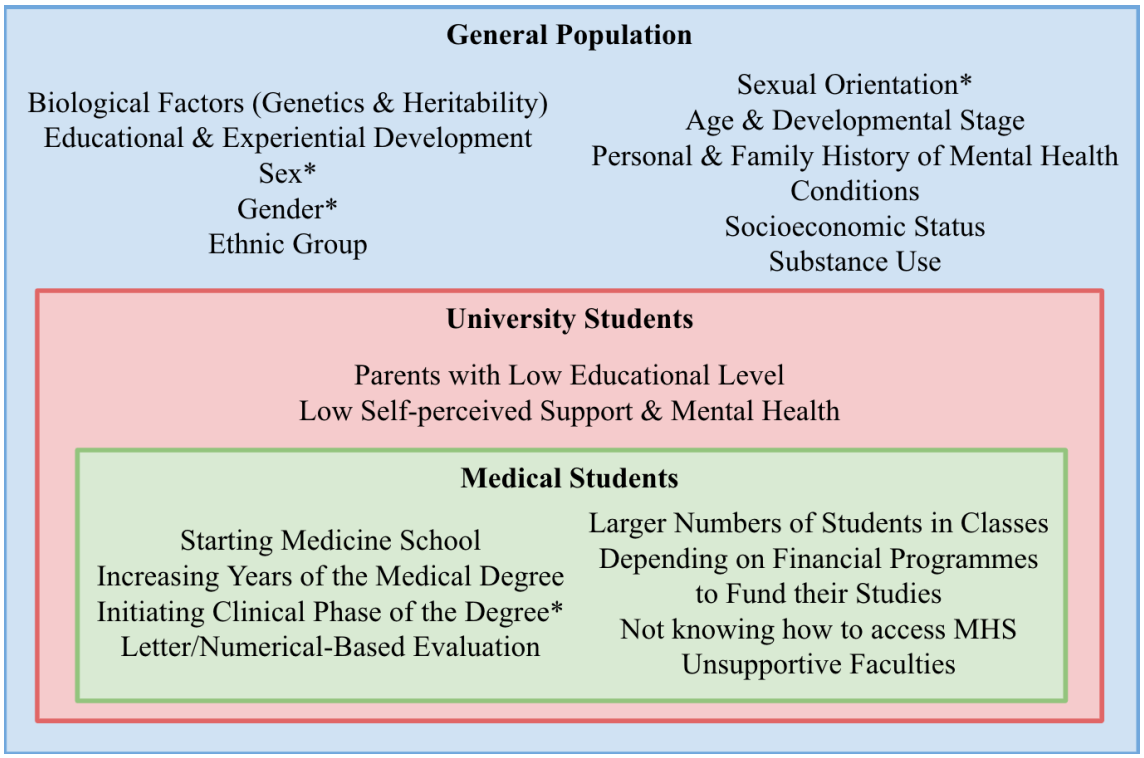

Figure 4: Most relevant determining factors in mental health (Based on: 2,14,14–24,26,49,50,52,54,55,65) [(*)Conflicting evidence]

4. Community-Based Interventions in Schools of Medicine:

Seeing all this concerning data on the deplorable state of medical students' mental health, the recommendations made by authors (48,51,56–58,60,61,65,67), the factors that should be taken into account and the thoughts of university students, it is only evident that universities, medical schools and other administrations involved should take an active step to amend this scenario. Unfortunately, actions to prevent these events have been scarce and in most cases their efficacy has not been evaluated, nevertheless, on the initiatives that did analyse their results some interesting findings were obtained.

Firstly, access to psychological or psychiatric assistance by depressed medical students was analysed in Rotenstein et al.'s systematic review revealing very low rates of consultation, only 15.7% of depressed students accessed these services (54). Furthermore, Givens et al., apart from examining the proportions of people who asked for assistance, they also studied the reasons behind these low rates. Of their total sample of medical students, 24% of them screened positive for depressive symptoms and out of this group only 22% had used mental health services, half used university-based services and the other half used external services (69). Upon studying the reasons why these depressed students didn't ask for help, the most mentioned explanation was lack of time, followed

by lack of confidentiality, stigma of mental health care, feeling that "*My problems are not important*" and the cost (69). Besides, suicidal students were 2.8 more likely to report "*fear of unwanted interventions*" as a reason for not using mental health services (69). Givens et al. conclude that most of the cited barriers to seeking help are system-based barriers and are therefore changeable by improving faculty mental health services.

In addition, to the authors' knowledge, no studies on service use have been carried out for Catalan medical students, but their opinion on the matter has been collected. Only 11.1% of Catalan medical students surveyed felt satisfied with the support given by the dean's office and 21.5% with the students care services, besides a majority of students felt that their faculties did not prioritize a collaborative environment over a competitive one, that their education was not a priority for their teachers and that some of the practices tutors were not very involved in students' training (59).

Secondly, these mental health services constitute a wide variety of activities which go from university-based psychologist consultation to mindfulness or awareness training programs carried out by professors or even by students themselves. Wasson et al. analysed in a systematic review which were the best practices associated with an improvement in medical students' emotional wellbeing and found that overall, quality of the evidence was poor. Nevertheless, they concluded that generally, students preferred receiving help from mental health specialists, family or friends rather than medical school personnel, as well as preferring accessing these services through a location rather than through the student's affairs office. In addition, small-group based mentor programmes were highly regarded by students as a wellness promoting method, but curricular changes such as establishing a pass/fail grading system were also proven effective (70). Langness et al. also found in their study that peer mentorship and community building events were the most used resources although the most desired wellbeing resources were Mental Health Services and schedule adjustments together with mechanisms to request assistance or time off where stigma was minimised (65). Edmonds et al.'s evaluation additionally discovered that behind unscheduled/free time, student-initiated activities were the second most impactful to their overall wellbeing (71).

Ultimately, different approaches to create these programmes have been designed and have resulted in significant results. The most evaluated strategies are mental health programmes based on the training of medical students which are based on the fact that

giving students the tools to cultivate their skills to take care of their wellbeing throughout university has important payoffs for the overall medical training and health system (72). Ungar et al.'s review on online programmes found that they could result in reduced stress perception, decreased burnout levels and strengthen coping strategies but overall, the quality was too low to establish a strong recommendation on these programmes (73). Scholz et al.'s programme to potentiate relaxation techniques based on autogenic training and progressive muscle relaxation achieved a decrease in scores of the depression scale used but had no significant effect on a clinical or statistical level (74). On the other hand, Rong et al.'s problem-oriented and physician-guided course showed an improvement of students' quality of life, depressive symptoms and empathy with no effect on burnout or self-efficacy, although they attribute this lack of effect to the short duration of their intervention (3 months) (75). However, Wang and Du did accomplish lower levels of psychological distress and academic burnout and higher levels of life satisfaction with their 8-week "*College student mental health education course*" (76). Another different technique was the neuropsychological based Training for Awareness, Resilience and Action (TARA) used by Ekbäck et al. which demonstrated an improvement in their anxiety, depression and perceived stress scores (77). Last of all, apart from being the less used resources (65), mindfulness-based interventions have not resulted in substantial improvement in anxiety, burnout and depression immediately post-intervention but they have shown a small effect on stress reduction and academic performance but probably with no substantial clinical effect (78).

Other strategies include curricular changes and peer-mentorship. The curricular changes strategy sees psychological distress not as an inevitable consequence of studying medicine but as a side-effect of not attacking the real source of it, the curriculum itself. Slavin et al.'s experience evidenced that actions such as changing to a pass/fail grading system, establishing longitudinal electives, reducing unnecessary curricula and creating mixed students-professors learning communities, decreased rates of moderate-to-severe depression symptoms, anxiety and stress (79). Another curricular change strategy was to include mandatory physical activity in medical school schedules, explaining that it would be more cost-effective and pragmatic than eventual counselling, however its effectiveness has not yet been analysed through statistical means (80). In other matters, peer-mentoring programmes consisting of a trained group of students giving advice to the rest of their classmates have only been analysed by Ghahramani et al. and Rastegar-Kazerooni et al.

without giving any specific or statistical insights on the mental health improvements accomplished by their programmes (81,82).

Considering only Spanish-based studies, as far as the authors know, only two studies have evaluated mental health programmes, the first one being a peer-mentorship programme without any training of mentors which resulted in no effect on students mental health (60) and the second one, an 8-week Compassion Cultivation Training (83) which resulted in significant improvement of self-compassion, mindfulness and emotional regulation as well as a relevant decrease in stress, anxiety and the emotional exhaustion component of burnout.

JUSTIFICATION:

Having exhibited all the evidence on the rates of depressive, suicidal, anxiety and burnout symptoms amongst general population, university students and more specifically medical students at the different geographical levels, it is imperative to take consequential actions to address this quandary. Evidence mentioned above specifies that the best way to approach this situation is through institutional and curricular changes (65,69,70,79), but these readjustments often take a long time and implicate many different administrations meaning that, while these modifications are made, the situation could worsen. For this reason, a more short-term solution needs to be put into practice, a solution that can reach the largest number of medical students, if not all, that shows efficacy in palliating the circumstances and that is highly cost-effective.

Therefore, taking into account that most students already feel overwhelmed by their curricular activity (49), that they prefer to receive advice from friends rather than professors (70) and that mentoring is already a highly used and valued resource (65,70), it became logical to the investigators that a programme with similar characteristics could have a positive impact on medical students' mental health. However, it was also logically considered that imposing the responsibility of treating mentally unwell students to other undergraduates would encounter ethical and legal issues as well as not fulfilling the objectives of the study. In addition, students already have several resources they can use to get professional mental health assistance, which is preferred (70). For these reasons, the prime objective of the programme is to facilitate the access to these mental health professionals apart from creating safe spaces where sensible topics can be discussed without performing any actual therapy with hopes on tackling stigma on mental health.

Lastly, although evidence on similar programmes are scarce and that other mentoring interventions have proven to have no impact on medical students' mental health (60), it is hypothesised that by training the mentors on how to recognize and approach a classmate with mental health problems, specially depression, anxiety and burnout, and explaining to them the ways to access all mental health services available, the effects will be much more impactful, also setting a precedent on this model of peer-mentoring programmes that should further be explored to generate even more robust evidence to justify the necessity of these interventions or to avoid them in case they should pose a danger to students participating in them.

HYPOTHESES:

Main Hypothesis:

- Medical students will find the SSP a useful tool to access the different mental health services as well as a valuable resource for their mental healthcare.

Secondary Hypothesis:

- The SSP will assist students in increasing their attention to their mental health as will be demonstrated by a significant rise of the MAAS scores between pre-programme and post-programme results.

OBJECTIVES:

Main Objectives:

1. Create a community-based support programme for medical students based on a peer-to-peer mentoring structure and centred on the prevention and promotion of mental health.
2. Analyse the evolution, feasibility and safety of the Sentinel Student Programme by establishing its usefulness to medical students as a mental health resource for their everyday live and as a tool to facilitate the access of medical students to Mental Health Services.

Secondary Objectives:

1. Evaluate the absence of an increased risk of depressive, anxiety and burnout symptoms for students participating in the programme either as sentinels or non-sentinels by evidencing a non-significant increase in the scores of the PHQ-9, GAD-7 and SMBM between pre-programme and post-programme results.
2. Increase students' attention to their mental state by evidencing a significant increase in MAAS scores between pre-programme and post-programme results.

METHODOLOGY:

Study Design:

This study consisted of a prospective single-arm quasi-experimental study where all individuals voluntarily participating were subject to the Sentinel Student Programme (SSP). Choosing a single-arm design limited the capacity of the study to determine explicit causal relationships between the programme and its effects, nevertheless, since the main objective of this study was to pilot-test the creation and establishment of the SSP, the investigation was not greatly hindered. Also, rates of mental disorders amongst medical students are sufficiently concerning to justify initiating a potentially beneficial programme without further delay since it would be immoral and unethical from the main researchers point of view to create a control group leaving half of medical students at University of Girona without the option of participating in a programme that follows the same basic structure of other programmes which have shown potential benefits (81,82).

Moreover, bearing in mind that Girona's school of medicine is a relatively small faculty, compared to the rest of Spanish medical schools, not offering the programme to all medical students could result in a drastic reduction of the sample participating in the programme and hence lower the statistical power of any analysis conducted. Furthermore, keeping controls separated from students actively engaged in the SSP would have required a logistical effort that could not be carried out in present conditions. It could be argued that these last problems could have been solved by establishing a multi-centre study, but the differences between Girona's Medical School curriculum and the rest of medical schools due to the use of PBL methodology could bias the results and conclusions. Last of all, a quasi-experimental design was considered over an observational strategy since it allows for the SSP to be introduced, for individuals to be selected, for variables to be controlled and accounted for and to determine the existence of a probable relationship between the programme and variables mentioned below.

1. **<u>Sentinel Student Programme's Structure and Organization:</u>**

Focusing on the study's progression, baseline variables were collected before the programme started, after the study had been explained to all participants and they had given their informed consent to participate in the study. After filling the survey used to collect all necessary variables, students were randomly assigned to a sentinel that tutorised them until the end of the study. Throughout the period between pre-programme

and post-programme data collections, students had a minimum of 3 meetings with their sentinel that were carried out in the format the group agreed to meet. During the meetings, sentinels evaluated the state of their group members according to the training they had previously received, and students were able to share their concerns in any subject they felt the sentinel could help them with (academic doubts, bureaucratic formalities and specially, any doubt regarding their mental health and the services available to them). On their last meeting, sentinel students handed out to their group members the survey to gather post-programme data, ending the intervention phase of the study.

A. Sentinel Training:

Sentinels, on the other hand, took some steps differently. The main researcher offered medical students at the University of Girona who were enrolled between the second and fifth year, the possibility of participating as sentinels in the programme. Presentations were held in the faculty and through online life recording for all students interested to explain the general lines of the project and what tasks would sentinel students carry out. After every presentation, a contact was given to students so that they could communicate with the main researcher and express their willingness to participate as sentinels. Once a minimum of 8 students per year expressed their will to engage as sentinels, they participated in an intensive training carried out by mental health specialists of the Fundació Galatea (Annex 1) that consisted of:

- Gaining abilities to recognise the main mental health problems that affect medical students (depression, anxiety and burnout) amongst others.
- Learning skills on minimal advice and first approach strategies.
- Knowing the different resources available and how to access them.

The moment students finished this training, they were officially recognised as sentinels. Before initiating the training, sentinels signed a confidentiality agreement (Annex 2) and completed the same survey as the rest of medical students but identifying themselves as sentinels to control that the knowledge acquired during the training did not bias their answers. On the other hand, once this baseline information was gathered, the collaborating researcher in charge of tutorizing the main researcher, as a psychiatrist, evaluated the results to ensure that no major risk was present for sentinels' mental health. If any risk situation should have been detected amongst any of the sentinels,

individualised evaluation of the subgroup of sentinels would have been carried out by the same psychiatrist to evaluate the potentiality of this risk detected.

B. Sentinel Group Creation and Arrangement:

Each sentinel student mentored a group of approximately 10 to 15 students of the year below and at the same time, by this method, each sentinel belonged to a group of students tutored by another sentinel 1 year older. Following this structure, all medical students between the first and fourth year were covered by a sentinel. To cover fifth year medical students, it was decided that 8 extra fifth year students would have to be incorporated as sentinels. This way, fifth year would have minimum 8 sentinels that would tutorise the rest of fifth year students, including fifth year sentinels who would be tutorizing fourth year alumni (Figure 5).

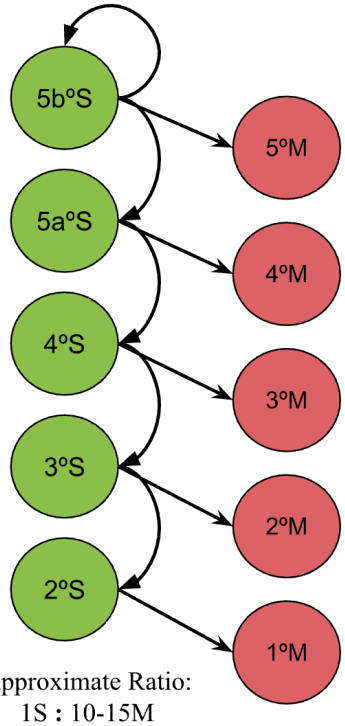

Figure 5: Schematic representation of the organization and distribution of sentinels (S) and medical students (M).

C. Professors and Faculty Involvement:

All professors of the faculty were informed of the development of the project through the director of studies and the Study Council, a governing organ that includes the coordinators of each subject as well as student representatives from each year. Through this bureaucratic pathway, two professors of each year were recruited to assist sentinel students and researchers in case any major problem arose that would have required the presence of an administrative authority, however, these professors were not trained or authorised to give mental health related council in order to assure the absence of bias at the time of evaluating the effect of the Sentinel Student Programme and were required to sign a confidentiality agreement in case they came across any personal information of any student that consulted them. This confidentiality agreement also included the tasks which they were to perform (Annex 3). On the other hand, a consensus document was written to set the terms for the introduction of this programme in the School of Medicine (Annex 4) as well as prior authorization of the dean was given to carry out the SSP in Girona's School of Medicine (Annex 5).

D. Sentinel Replacement:

Moreover, in case a sentinel expressed their desire to leave the study, two mechanisms to solve this problem could have been activated. First, if the other sentinels agree, students of the group left without a sentinel would be distributed between the other groups equitably, this change would be considered as a possible confounding factor and therefore would be recorded on the post-programme survey. Secondly, if redistribution is not possible, a new sentinel would replace the missing sentinel. To do that, it was necessary to have a reserve of trained sentinels before initiating the study. Since this factor could alter the results, the variables having received the training and having worked as a sentinel were duly recorded in the pre-programme and the post-programme surveys.

2. Data Collection:

On the other hand, data was collected with a difference of 6 months between pre-programme and post-programme data collections. Each period of data gathering lasted for 7 days, extendable to 14, and were temporarily carried out in similar time frames so that they were at the same distance from holidays and examinations, to control these two possible influencing factors. In each data collection time spam, medical students, in a meeting with their other colleagues and sentinel, individually filled a survey requesting all the variables needed. This survey was created using the platform "*Lime-Survey*" and it was associated to an institutional email address to ensure data protection. This survey was distributed to students using a link to avoid having to request every student's personal contact. In case students did not have a device capable of accessing the self-generated link, the medical school facilitated them a device to fill out the survey.

After the post-programme data collection was finished, statistical analyses were initiated according to the procedures explained in the "*Statistical Methods*" section to assess the objectives and hypothesis stated above. Once preliminary results were available, they were exposed to the participants and any member of the groups involved, especially members of the University of Girona, Fundació Galatea and CEMCAT.

3. Subject Maintenance and Withdrawal:

For the purpose of maintaining participants in the follow up session six months after the SSP started, data collection periods were set to be extendable to 14 days to reach the maximum number of students possible, also sentinels had to programme a minimum of

three meetings with their assigned students, although the main purpose of these gathering was not to maintain them but to assess their wellbeing and solve their doubts as explained previously. In other matters, the main researcher and the psychiatrist maintained regular meetings with sentinels to ensure an efficient solution to any problem that arose. In any case, both students and sentinels were able to leave the study at any moment if so they wished. Only sentinels were required to notify their absence so that any inconveniences generated by their absence could be solved. Anyhow, absences were recorded by the lack of response to the post-programme form.

Site and Period of Study:

The schedule of the study is summarised in Annex 6. The study took place in the Medical School of University of Girona during the years 2023 and 2024 with previous informed authorization (Annex 5). Recruitment of the sentinel students was done as soon as the ethics committee gave their approval to carry out this study at the end of October 2023. Once the necessary sentinel students were recruited, in November 2023, presentations, medical student recruitment and pre-programme data collection were completed. These latter actions were performed at the medical school's main building during class schedule to avoid disturbing student's schedules and to obtain as many participants as possible.

Then, between November 2023 and May 2024, sentinel students held a minimum of 3 meetings with their assigned students with an approximate similar time interval between meetings, so that they took place in January, March and May 2024. These gatherings developed in the location and format agreed between the students and the sentinel, but the medical school ensured that all resources needed were available. On their last meeting, at the beginning of May 2024, sentinel students were handed out the pertinent survey to their group members to gather post-programme data. November 2023 and May 2024 were chosen because of their similar distances from examination periods in December 2023 and June 2024, a factor which could have easily altered results due to increasing stress as exams get closer, however, the authors recognise that due to the institutional calendar of the University of Girona it was very difficult to find two months with previous time periods of similar distance between holidays and pre/post-programme data collection days.

Study population:

All medical students of the faculty of Girona who were enrolled between the first and fifth year of medicine were offered to participate in this study. Sixth year students were not included in this study because after seeking medical students' opinion in a preliminary survey, while in all other years 8 or more students offered to be sentinels, only 3 sixth year students expressed their desire to participate as sentinels. This number was far from the minimum 8 sentinels required therefore, it was logistically impossible to include them on the study. In addition, because sixth year students would have been in the same situation as fifth years were, as previously explained in the "*Study Design*" section, a minimum of 16 sixth year sentinels would have been needed, complicating even more their potential participation.

Inclusion/Exclusion Criteria:

Furthermore, only two inclusion criteria were requested, the first one was to be a medical student enrolled in the first, second, third, fourth or fifth year of medicine in the University of Girona during the period that this study took place, the second one was to have agreed to the informed consent. On the other hand, to participate as sentinels, apart from satisfying the first and second criteria, students were required to have attended all the training sessions given by Fundació Galatea without exceptions and to sign the confidentiality agreement. No exclusion criteria were established for as a mental wellbeing promotion programme, all medical students in the faculty of medicine at Girona's University could potentially benefit from it independently of their social background or previous mental condition. Therefore, only participants who are included in the programme and that afterwards desire to withdraw from it specifying that they want their data to be removed were excluded from the study.

Study Procedures:

To carry out this research, the variables explained in the following section were uploaded into a Lime-Survey questionnaire. This survey was linked to an institutional account belonging only to the main researcher as part of the University of Girona. The first page of the survey showed the written consent which students had to agree to if they wanted to participate in the study. Once they had given their consent, the survey automatically jumped to the next section where students were asked to generate a personal code to

pseudonymize their data following certain guidelines that will be explained in the "*Data Protection*" section. After that, the questionnaire continued asking the remaining data specified in the "*Variables*" section, including items belonging to the psychometric tests that will be explained below.

1. **Instruments:**

A. Midtgaard's List of Vital Events:

Events of vital importance can cause a significant impact on people's mental health, either by increasing their wellbeing or decreasing it, thus it could alter the way students answer to the mental health questionnaires. Therefore, this variable was registered to control its possible confounding effect using a standardised list of life events which included all relevant situations which could affect students (84). This is a nominal qualitative variable that consisted of a single question (*Have you experienced any of the following live events in the past 6 months?)* that could be answered with one or more of the following options:

- Serious disease/accident/hospital admission.
- Divorce/separation/broken relationship.
- Have been married/started living with cohabitant.
- Have had children.
- Death of a family member/close friend.
- Other difficulties among close family members.
- Serious financial problems.
- Serious problems with your residence/dwelling.
- Partner being unemployed/granted leave.
- You or a close family member has been involved in a serious violation of the law.
- Problems with your partner.
- Having moved away from parents.
- Serious illness among close family members.
- Other serious events (self-specified).

B. Oslo Social Support Scale – 3:

The OSSS-3 scale (Annex 7) is a three item scale devised to measure the level of social support in a quick and economic manner (85), which has already been used in young people and mental health research, including Spanish based studies allowing its use in a Spanish translated version (86). Although internal validity of this scale was found to be quite low (Cronbach's alpha = 0.640), all other psychometric evaluations carried by Kocalevent et al. supported the reliability of this scale and they justify the low internal validity because of the low number of items in the scale, which has a direct impact on

Cronbach's alpha test (85). The sum score ranges from 3 to 14, with high values indicating strong social support and low values indicating poor social support. This result can be stratified into three ordinal qualitative groups: Poor social support (3–8), Moderate social support (9–11) and Strong social support (12–14).

C. Alcohol Use Disorders Identification Test – 3:

Researchers will also evaluate alcohol use disorders using the Spanish validated version of the AUDIT-3 questionnaire (Annex 8). It consists of a 3-item scale that can be used as a screening tool to evaluate potential alcohol use disorder which can alter the person's mental health, endangering the integrity of any relationship established in this study and therefore constituting a factor that must be controlled (87). AUDIT-3 scores range from 0 to 12, and cut-off points for significant risk of alcohol use disorder are set at $\geq$5 for males and $\geq$4 for females to have acceptable sensitivity and specificity values (87).

D. Mindful Attention Awareness Scale:

Continuing with the rest of the scales, one of the goals of this study is to show how the SSP might affect positively medical students' attention to their own mental health. To evaluate this objective, researchers have devised two means, a subjective-objective mental health comparison and a scale-based evaluation. The subjective-objective comparison will consist of relating the students' self-assessed health status with the results obtained in the different mental health evaluating scales, giving an indirect measure of the person's insight of their real mental state. On the other hand, the MAAS (Annex 9) has been chosen to objectively evaluate students' capacity to be aware and conscious of the situations surrounding them and hence realise their true mental state, since to be able to verbalise a subjective experience it has first to become conscious (88,89). This measure consists of a 15-item self-reported single-factor scale that uses a 6-item Likert scale for each entry, then the score is obtained from the arithmetic average of all the items so that, the higher the score, the greater the self-consciousness state (88). The Spanish version of this instrument has been validated with good reliability measures (Cronbach's alpha = 0.90), however, when analysing its sensitivity to change, results were not as satisfactory as it would be desirable for this study but it is expected that this fact will not have a higher impact since compared to previous studies, the intervention that will be carried out in the present moment will be much longer (89).

E. Patient Health Questionnaire – 9:

The PHQ-9 (Annex 10) is a 9-item questionnaire which uses a 0 to 3 range Likert scale to evaluate each item, giving total results that can vary between 0 and 27 and that can be stratified into five levels of severity: minimal (1 – 4 points), mild (5– 9), moderate (10-14), moderately severe (15 –19); and severe (20– 27) (90). This questionnaire will be used to evaluate the presence of depressive symptoms amongst medical students considering that, compared to the other most frequently used scale, the Beck Depression Inventory-II, it is shorter and based on the diagnostic criteria for depression, thus indicating a potential advantage (90). Also, the PHQ-9 has a Spanish version that has been validated with excellent internal consistency (McDonald's omega = 0.89), however, the authors of these analyses only recommend a single cut-off point ($\geqslant$8) to stratify patients into potential depressive disorder and non-indicative of depression disorder without differentiating severity levels based on their sensibility and specificity evaluation (91). Although severity levels proposed by Titov et al might give more information for the study, the investigators used Gómez-Gómez et al. cut-off point since it is a more correct methodological approach to analyse data in this study, therefore, students obtained a numerical result in their PHQ-9 and then they were classified into potentially depressed and potentially not depressed.

F. General Anxiety Disorder – 7:

Moreover, to be able to measure anxiety symptoms, researchers used the GAD-7 Scale, which is a 7-item one-dimensional self-administered scale designed to diagnose general anxiety disorder but which can also be used to assess severity of anxiety symptoms using its score range (Normal/Minimum (0-7 points), Mild (8-10), Moderate (11-14) and Severe (15-21)); each item is evaluated using a 4-item Likert scale that ranges from 0 to 3 (92) (Annex 11). For this study, the Spanish validated version of GAD-7 was used, yet again, instead of using a severity range, a cut-off point of $\geqslant$ 10 was established to divide individuals into potentially anxious or not potentially anxious. This version showed excellent reliability values for internal consistency (Cronbach's alpha = 0.936) and time stability (93).

G. Shirom-Melamed Burnout Measure:

To conclude with this section, measuring of burnout symptomatology is most commonly done by using the Maslach Burnout Inventory (MBI) (94), but this investigation did not

apply this instrument but instead employed the Shirom-Melamed Burnout Measure (SMBM) for the following reasons. MBI's measure of burnout is based on the assessment of exhaustion, cynicism and reduced personal efficacy, this latter subscale is highly related to work environment which would not be suitable for the population being targeted (94) whilst the SMBM concept of burnout only relates to physical fatigue, cognitive weariness and emotional exhaustion (95), characteristics which are of higher interest to evaluate in medical students. In addition, the conceptual framework of the SMBM is stronger than the one supporting MBI, specially because the former is based on a psychological theory, the Conservation of Resources theory, while the latter is a construct based on exploratory factor analyses (94). Lastly, the reliability coefficients of the SMBM (Cronbach's alpha = 0.92) and its subscales tend to exceed those of the MBI-General Survey (Cronbach's alpha = 0.90) (94). Therefore, investigators decided to adapt to students the Spanish version of the SMBM (Annex 12), which consists of a 14-item questionnaire, divided into 3 dimensions: physical fatigue (Items 1, 2, 3, 4, 5 and 6), cognitive fatigue (7, 8, 9, 10 and 11) and emotional exhaustion (12, 13 and 14); each entry is evaluated using a 7 response range that goes from 1 (never) to 7 (always) (94). Lastly, a part from analysing the total score, with higher results pointing out higher levels of burnout, a cut-off point of 4.40 has been suggested to differentiate between severe burnout syndrome and non-severe burnout syndrome (96).

Study Variables:

Table 2: Definition of variables that will be studied in this investigation

INDEPENDENT VARIABLE	DESCRIPTION
Participation in the SSP	To have been tutorized by a sentinel during the pilot test of the SSP potentially influenced the rest of variables studied and could also be adjusted by researchers, therefore, this binomial qualitative variable answered with a "*Yes*" or a "*No*" played the influential role in this study.
DEPENDENT VARIABLES	**DESCRIPTION**
Do you know the mental health services available to medical students?	Knowledge on the services available for students to attend professionally to their mental health was the variable investigators expected to be influenced by participation in the SSP. This is a nominal qualitative variable that had the following answering options: Yes and No.

Would you know how to access these mental health services?	Similarly to the previous variable, knowing exactly what services are available was influenced by participating in the SSP. This is a nominal qualitative variable that had the following multiple choice answering options: - Servei d'Atenció Psicològica de la Universitat de Girona. - Serveis de la Xarxa de Salut Mental de Girona. - Serveis d'Atenció Psicològica de la Fundació Galatea. - Serveis d'Atenció Psicopedagògica de la Foixarda (Fundació Drissa). - Serveis d'Atenció Psicològica del Col·legi Oficial de Psicòlegs de Catalunya (Psicoxarxa Solidària). - Servicio de Atención Psicológica para Estudiantes de Medicina (SAPEM).
Did you find the sentinel student programme useful as a facilitator to access the mental health resources? *Did you find the sentinel student programme useful as a tool to increase your wellbeing?*	These two variables are predicted to be affected by the independent variable. They are nominal qualitative variables that had the following answering options: *Yes* and *No*.
SECONDARY VARIABLES	**DESCRIPTION**
These variables have been selected as explained in the introduction for their potential confounding or modifier effect, as well as to test for secondary hypothesis and carry out secondary objectives.	
Sociodemographic and economic variables: These variables were only recorded in the pre-programme survey as it was assumed they were stable characteristics of the individuals and therefore would not change between the pre- and post-programme data collections.	
Sex	Nominal qualitative variable with two answering options: *Female* or *Male*.
Gender	Nominal qualitative variable with multiple answering options: *Woman*, *Man*, *Others* (*Non-binary, fluid gender, ...*)
Sexual Orientation	Nominal qualitative variable with multiple answering options: *Heterosexual*, *Homosexual*, *Bisexual*, *Others*.
Age	It was entered as a quantitative discrete variable.
Couple situation	This is a nominal qualitative variable that had the following answering options: *Single*, *In a stable closed relationship*, *In a stable open relationship*.

Working situation	This is a nominal qualitative variable that had the following answering options: *Unemployed*, *Part-time employment*, *Full-time employment*.
Method of medical degree funding	This is a nominal qualitative variable that had the following answering options: *Self-funding*, *Funded by parents*, *Scholarship funding*. Students that pay for their studies with mixed methods were asked to select the option which accounted as the major funding source.
Are you studying in your habitual place of residence?	This is a nominal qualitative variable that had the following answering options: *Yes* and *No*.
Current living situation	This is a nominal qualitative variable that had the following answering options: *With parents*, *In a student's boarding house*, *Sharing an apartment with friends* and *Alone*.
Having parents who work as health workers	This is a nominal qualitative variable that had the following answering options: *Yes* and *No*..
Academic variables: These variables were only recorded in the pre-programme survey as it was assumed they were stable characteristics of the individuals and therefore would not change between the pre- and post-programme data collections.	
Year in which they are enrolled	This is an ordinal qualitative variable that had the following answering options: *1st, 2nd, 3rd, 4th* and *5th*. For those enrolled in different subjects belonging to different years, they were asked to select the year to which the highest number of subjects belonged.
Having studied the subject "Human Conduct"	This is a nominal qualitative variable that had the following answering options: *Yes* and *No*.
General health variables: These variables were recorded on the pre-programme and post-programme surveys.	
Self-perceived health status	This variable were recorded using the question "*How would you say your health is in general?*" as it is used in the Catalan Health Survey (ESCA) for general population (97). This is a nominal qualitative variable that was answered using a 5-options scale as in the ESCA: *Excellent, Very Good, Good, Fair* and *Bad*.
Vital events in the last 6 months (Midtgaard List):	This variable was measured with the Midtgaard List explained in the "*Study Procedures*" section.
Social support: (OSSS-3)	This variable was measured with the Oslo Social Support Scale (OSSS-3) explained in the "*Study Procedures*" section.

Alcohol Use: (AUDIT-3)	This variable was measured with the AUDIT-3 validated questionnaire explained in the "Study Procedures" section.
Have you used drugs that were not required for medical reasons?	To evaluate drug consumption, the first item of the DAST-10 survey was used. This is a nominal qualitative variable that had the following answering options: *Yes* and *No* (98).
Mental health variables: The first three variables were collected due to their potential modifier effect whilst the last four variables were measured to carry out both secondary objectives of this investigation (See "*Objectives*" section). All variables except "*Mental Health Disorders Family History*" were collected in the pre- and post-programme surveys.	
Do you have or have been diagnosed with a mental health disorder?	This is a nominal qualitative variable that had the following answering options: *Yes* and *No*.
Are you or have you been in psychopharmacological treatment or psychological therapy for a mental health disorder?	This is a nominal qualitative variable that had the following answering options: *Yes* and *No*.
Do you have any family history of mental health disorders?	This is a nominal qualitative variable that had the following answering options: *Yes* and *No*.
Mental health insight capacity: (MAAS)	This variable was measured with the Mindful Attention Awareness Scale explained in the "*Study Procedures*" section.
Depressive symptoms and suicidal thoughts: (PHQ-9)	This variable was measured with the Patient Health Questionnaire - 9 explained in the "*Study Procedures*" section.
Anxiety symptoms: (GAD-7)	This variable was measured with the General Anxiety Disorder - 7 Scale explained in the "*Study Procedures*" section.
Burnout symptoms: (SMBM)	This variable was measured with the Shirom-Melamed Burnout Measure explained in the "*Study Procedures*" section.
Programme related variables: These variables are intimately related with main dependent variables, but they are aimed to measure secondary aspects of the SSP and to collect evidence on potential modifiers researchers though of utmost importance. Only the first and second variables in this section were asked on both pre- and post-programme surveys, while the rest were only collected on the latter survey.	
Do you consider the medical school a mental health friendly environment?	This is a nominal qualitative variable that had the following answering options based on a 5-item Likert-scale: *Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly agree*.

Have you participated as a sentinel in the SSP?	This is a nominal qualitative variable that had the following answering options: *Yes* and *No*.
How has your relationship with your sentinel been?	This is a nominal qualitative variable that had the following answering options: *Very bad, Bad, Neither good nor bad, Good, Very good.*
How has your relationship with your assigned group been?	This is a nominal qualitative variable that had the following answering options: *Very bad, Bad, Neither good nor bad, Good, Very good.*
Assistance to sentinel-student meetings	To know if the programme had worked well enough to extract strong conclusions, the adherence of students to the SSP must be evaluated by recollecting the assistance to meetings (quantitative discrete variable) and the times they had consulted the sentinel student individually (quantitative discrete variable).
How many times have you consulted your assigned sentinel on personal matters?	
Did you access any of the mental health services available using the information provided by the sentinels or through the SSP?	This is a nominal qualitative variable that had the following answering options: *Yes* and *No*.

Statistical Methods:

1. **<u>Calculation and/or justification of the sample size:</u>**

Calculating an adequate sample size for this investigation has proven to be challenging as well as methodologically not the optimum path to follow for two main reasons. Firstly, the lack of evidence on studies involving public mental health interventions that evaluate the changes in medical student's knowledge of mental health services leaves investigators without any reference to be used for sample size estimation, therefore obstructing this course of action; and secondly, the present design has been elaborated to cover the entire population it has been aimed to, that being all medical students at University of Girona enrolled between the first and fifth year, consequently, calculating a sample size would not be methodologically correct for the entire population was included.

Even so, to guarantee that the number of participants is enough to ensure a robust statistical analysis, a projected minimum sum of students was calculated using GRANMO (99) for two hypothetical scenarios, together with the statistical power in these two

scenarios for the total sum of students. For an estimated total population of 370 students and a minimum difference on 10% increase between pre and post-programme evaluations on the knowledge of mental health services, the statistical power would be of 97% accepting an alpha risk of 0.05 in a two tailed test without any loss of participants. On the other hand, in equal conditions, if maximum indeterminacy is assumed, meaning that the increase between both groups has to be of 50% (100,101), statistical power exceeds 100%. Therefore, if the hole population is studied, even with minor proportion changes such as 10%, statistical power would be sufficient.

Likewise, if these two changes in proportions are assumed for sample size estimations, for a 10% pre-post increase, accepting an alpha risk of 0.05 and a power of 0.8 in a two-tailed test 159 subjects would be necessary to recognize this difference as statistically significant, also, with such sample and assuming an increase from 10% to 20% of mental health services knowledge, the probability that such difference is statistically significant would be 71%. In the same way, assuming maximum indeterminacy, accepting an alpha risk of 0.05 and a power of 0.8 in a two-tailed test 18 subjects would be necessary to recognize as statistically significant a difference with an initial proportion of 0% and a final proportion of 50%, and, using this sample, the probability of detecting such difference as statistically significant would be of 97%.

In conclusion, total population can be included with statistical power guarantees but to ensure that the final number of participants is enough, investigators aimed to obtain a volume of students participating in the programme higher than 159. Furthermore, the real statistical power of this study was calculated once results were obtained and reflected on the "*Results*" section, together with their analysis in the "*Discussion*" section.

2. Statistical analysis:

The first step of the statistical analyses was to describe the population of this study, its composition and singularities, as well as to evaluate the results obtained in the rest of variables that define the general health, mental health and program-related knowledge of the surveyed students. To accomplish this mission, descriptive statistics were used. Also, this initial evaluation included testing if quantitative variables followed a normal distribution using Shapiro-Wilks test to know which statistical tools were more appropriate in the next step of the analyses. Once a deep analysis on the different aspects of each variable was conducted, an in-depth study of the dependence and independence

of these variables proceeded using parametric or non-parametric tests depending on the distribution they followed and always considering a 95% confidence level and statistical significance when $p<0,05$.

Firstly, a pre-post analysis was done to evaluate any possible changes that might have happened after the introduction of the programme. This analysis mainly focused on changes in knowledge of the different mental health services available to medical students and on variations in mental health disorders symptomatology together with any relevant increase of student's mindful capacity. To carry it out, considering that work was done with paired samples, categorical variables were compared using McNemar's test in case they were bimodal, Cochran Q test if they were multimodal and G-test if the load of zeros for certain categories hindered the use of the other two tests. When possible, these measures were accompanied by a relationship strength test, such as Cramer's V test (CrV) to account for the real impact of any statistically significant relationship. For quantitative variables, pre-post mean comparison was done using paired-samples Student's-t test or Wilcoxon's W-test for non-parametric variables.

After the pre-post evaluation was done, a multivariant analysis was carried out to determine if any of the secondary variables explained before had an influence on mental health disorder scales or students' knowledge of mental health services. To do this, selection of most adequate secondary variables to be included in the multivariant analysis was done using a Variance Inflation Factors test to know which variables had the highest multicollinearity. After this triage, an analysis of variance test (ANOVA), logistic regressions or multinomial logistic models were used to see which of these variables played an impact on mental health related scales and mental health service knowledge. In addition, a correlation matrix was done to prove the relationship between mental health scales using Pearson's r Coefficient for parametric variables and Spearman's rho Coefficient for non-parametric variables.

Lastly, to carry out these analyses the statistical computing programme "*R*" version 4.4.1 was used. Moreover, considering the possibility of data to be reported missing in some cases due to unanswered items in the survey or individuals leaving the study, a sensibility analysis was carried out to find out if there were any characteristics common to individuals withdrawing from the survey or if this disengagement was due to chance.

Ethical Aspects:

This study developed according to the ethical principles of the *Belmont Report* (102), the *Declaration of Helsinki* (103), J. Canimas-Brugué and A. Bonmatí-Tomàs "*Guide to the ethical aspects to be assessed in research projects with people or with personal data*" (104) and the *Spanish Law 41/2002, of November 14, on the basic regulation of patient autonomy and rights and obligations regarding clinical information and documentation* (105). To follow what these legal documents establish, all individuals participating in this study whose data was taken will signed an informed consent (Annex 13) to explicitly indicate their agreement to participate in the study before starting to answer the survey. This consent was only requested at the beginning of the study as it was clearly indicated in the informed consent that the consent given was for the whole duration of the study. Also, no economic or any kind of reward was given to students participating in this study to avoid any conflict of interest or bias. Nevertheless, students had the option to express their desire to withdraw from the study and have their data destroyed, if not, data will be destroyed 2 years after the study has ended. In addition, since it is possible that at the time of starting this study some of the eligible students are under legal age (18 years old), it has been established that, following article 9.4 of Law 41/2002 (105), any student over the age of 16 was in legal capacity of giving their consent to participate in the study.

Moreover, to comply with the rule of law, sentinels, professors and investigators signed, before starting the study during the recruitment phase, a confidentiality agreement (Annex 3 & 14) that established their responsibilities towards any sensible information they came across. This confidentiality agreement was elaborated by the main investigator with the revision and consent of the Executive Commission of the CEMCAT. Also, according to Spanish *Law 14/1986 of General Health* (106) and *Organic Law 7/2021, of May 26, on the protection of personal data processed for the purposes of prevention, detection, investigation and prosecution of criminal offences and execution of criminal sanctions* (107), the breaking of this kind of confidentiality agreement is stipulated as a highly serious violation of the law with the financial sanctions this implicates. This latter information was reported when the confidentiality agreement was signed.

In addition, investigators were given the consent of Girona's Medical School to carry out this study (Annex 5) and the protocol was approved by the Ethics and Biosafety in Research Committee of the University of Girona in October 2023 (Annex 15). All rights

and wellbeing of the study subjects have been guaranteed by the procedures that have been explained all through the different previous sections and mostly through the written consent, choice to participate, the right to withdraw, the confidentiality agreement and the previous approval of the research protocol by the Ethics Committee. Also, any change that took place in the planned development for this investigation was duly notified to the Ethics Committee to ensure, by a new Committee evaluation, that initial guarantees were still maintained in spite of the new modifications added. This procedure was not required since no new arrangements were done to the original protocol. Lastly, investigators communicated the Committee the ending and results of this investigation.

Above all, these mechanisms served to avoid any risk and inconvenience to the students surveyed, however, the investigators recognise that during the process some inconveniences could have appeared. During data collection processes, questions were asked on personal and family mental health matters which could have awaken memories or emotions which might be uncomfortable to the student answering the test. Also, during the intervention period, students were counselled by sentinels on what having a good mental health meant and this could as well have given rise to uncomfortable situations, however it is also this effect authors were looking for since realising once unhealthy condition would aid this person direct their efforts better to treat the source of their discomfort, changing from a situation that could be considered moderately inconvenient to a condition which could potentially be highly beneficial to the student.

Nonetheless, the matter which worried the present investigators the most was the possibility of observing a negative impact of this programme on sentinel students as they were exposed to other people's troubles and, without strictly having it, this might spring up a sense of responsibility that could increase their stress levels, worsening a situation which, as has been showed, already has its downsets. To minimize or even avoid this predicament, researchers clearly stated the responsibilities of sentinels towards their assigned students in their training as well as in the written consent and confidentiality agreement, expressing very clearly that their job limited to informing on what health services were available to students, how to access them and the mental health disorders recognition techniques and primary approach taught in their training. Under no circumstance should sentinels try to treat or perform any untaught technique since their job was not to treat students but to act as a liaison between students and the mental health services and to accompany them in the process of healing by themselves with real

professional help. Besides, sentinels were introduced to the teachers which were responsible to communicate any problem that should come forth during the intervention and regular meetings were held with the investigators if any methodological problem should emerge during the study. Lastly on this matter, the meetings between the sentinels and the main researcher were attended by the tutor of this work and psychiatrist to ensure and assess that the sentinels did not enter a situation of risk for their mental health.

Finally, it is the will of the main investigator to remark that any student participating in the study, being a sentinel or not, had the absolute right to abandon the study at any moment if they wish to do so, the only required procedure was for leaving sentinels to inform the main researcher of their absence in order to reassign the students left without sentinel or to introduce a new sentinel. Moreover, if any complication had come about during the whole duration of the study, researchers had full responsibility to derive this individual in need to the suitable health services to procure for the wellbeing of the subject.

Data Confidentiality:

This study has been carried out in accordance with the *Regulation (EU) 2016/679 of the European Parliament and Council of April 27, 2016 relating to the protection of natural persons with regard to the processing of personal data and the free circulation of these data* (108)*, Spanish Organic Law 3/2018, of December 5, on the Protection of Personal Data and Guarantee of Digital Rights* (109) and *Spanish Organic Law 7/2021, of May 26, on the protection of personal data processed for the purposes of prevention, detection, investigation and prosecution of criminal offences and execution of criminal sanctions* (107).

In order to comply with the laws cited above, data was collected and curated with the utmost care it can be given and it was only used to accomplish the objectives mentioned in the "*Objectives*" section. To start, only essential variables were scrupulously selected to be collected due to their interest to answer the research question and/or because of their relevant potential confounding impact and therefore to control these possible confounding factors. This data was gathered through an online survey using the tool "*Lime-Survey*" which was linked to a university institutional account (u1967705@campus.udg.edu) to which only the main researcher had access to. Lime-Survey was chosen as the online platform to do this survey following recommendations made by University of Girona'

Data Protection Delegation. Once the survey was ready it wase delivered to sentinels and students through a link that was presented only by researchers or sentinels without anyone else having access to this link. By this mechanism researchers avoided having to ask for contact data from any student directly therefore evading the gathering of unnecessary personal information.

As students initiate the survey the first question was if they agreed to the informed consent which was uploaded in the same page of the form. To continue, each student was asked to create a personal unique and non-transferable code to pseudonymize their personal data. This code was constituted by numbers and letters based on the following personal information only recognisable to the student itself:

- Numbers in the third, fifth and seventh position of the personal university code.
- Initial letter of the name of both biological parents, if no biological parents, then use initials of adoptive parents or legal tutors.
- Last letter of the National Identity Document (DNI), if no DNI available use the last letter of the Foreigner Identity Number (NIE), if no NIE available use the first letter that appears in the Passport number and if no letters are present in the Passport number use the letter P.

By this process, students' data was unidentifiable by the main researcher but at the same time, the investigator was able to follow up individuals' participation and response through time. After creating this code, students answered the complete survey and when finished, the answers were automatically stored in the "*Lime-Survey*" application so that once all data had been collected it was kept safe on a secure server of the University of Girona. In the post-programme survey, students had to enter their personal code again before answering any further questions and to make sure every student entered the correct code, the instructions were uploaded again on the same page as the code question. Once the data collection period was over, the database stored in the institutional server was uploaded to the statistical tool mentioned above. In addition, this data was not shared during the analysis process and was only accessible through the server of the author linked to the University of Girona. After all data had been examined, the statistical evaluation was revised by a statistician to make sure all calculations were appropriate and correct.

In addition, as explained in the "*Study Design*" section, after sentinels had answered the survey, this data was analysed by the psychiatrist to ensure that none of the sentinels were at an imminent risk of serious psychopathology. During this process, obtained data was randomised and separated from the pseudonymization code to make it anonymous to the psychiatrist. Once this evaluation was complete, should have any of the subjects suggested any suspicion of mental disorder, the psychiatrist would have individually evaluate the subgroup of subjects to which this person at risk belonged (for example, if the subject was a person from fourth year, all fourth-year sentinels would have been evaluated). As this procedure concluded, the psychiatrist decided if people interviewed were fit to continue in the project, thankfully none of the sentinels were in this situation. This potential path appeared in the written consent document. In the event that a person was assessed as not fit, their data would have been deleted following the same process that would have been followed if they requested to leave the study.

Furthermore, once conclusions have been extracted from numerical data and compared to present evidence, the preliminary results were presented to medical students involved in the study as well as to professors and institutions implicated, such as the Medical School of University of Girona which has been granted permission to present these conclusions in different activities with previous acceptance of the main researcher. These presentations only used treated data and group results, so no single responses were presented thus affecting no student in particular, also, students have implicitly agreed to have their data statistically analysed for further presentations and research purposes. At the time presentations have finished, all obtained results and conclusions will be assembled to construct a publishable article to share these findings with the interested scientific communities and to allow this project to expand to other universities, especially CEMCAT related universities, if data evidences its security and positive effects.

Lastly, to guarantee the participants' ARSLOP rights (access, rectification, deletion, limitation of treatment, opposition and portability of data), the main researcher made his direct contact available for participants to express their desire to exercise these rights. In case a student expressed their desire to withdraw from the study or exercise the rights mentioned above, the student would have had to communicate with the principal investigator through his institutional email address (u1967705@campus.udg.edu) and meet with him for the student to identify their data with the researcher's supervision and have it eliminated permanently, rectified, limited or gathered in the exercise of his

ARSLOP rights or right to withdraw. On the other hand, all data will be permanently eliminated after two years of the ending of the intervention by deleting any record of the raw data gathered from the institutional account used. Also, as the main researcher will not belong to the University of Girona after that period, the email account and all references to personal inquiries made will be permanently erased as the account will be shut down.

RESULTS:

General Sample Description:

The initial sample consisted of 182 medical students from Girona's school of medicine that were enrolled between first and fifth year, from whom 41 participated as sentinels. This sample represented approximately half the total population aimed in this study. Their mean age was 20.9 (2.74) and the female sex (79.6%), as well as gender (78.8%), was predominant compared to male sex (20.4%) and gender (20.7%) and other genders (non-binary or gender-fluid) (0.6%). When looking at sexual orientation, most students identified as being heterosexual (77.6%) followed by bisexual (16.1%), homosexual (5.2%) and others (1.1%). Analysing couple situation, most participants declared being single (56.2%) compared to those who were involved in stable relationships whether they were closed/monogamous (41.6%) or open/polygamous (2.2%). On the other hand, when examining individuals living situation it was found that most participants were living in a shared apartment with other university students (61.2%), followed by other housing options such as living with parents (27.5%), student's residency (7.3%) or living alone (3.9%), although, most students belonged to the same autonomous community as their alma mater (66.7%). Lastly, upon looking at the participants employment and career-funding methods, most individuals conveyed to be unemployed (85.4%) and to have their medical studies funded by their families (70.2%), nevertheless, a significant part of participants expressed being currently employed, whether it was on a part-time (12.9%) or full-time job (1.7%), and using other funding methods such as state scholarship funding (21.9%) or self-funding (7.9%).

In addition, delving into more academic-related variables, students who participated in the study belonged to all grades from first to fifth year with a similar rate of participation between groups, however, the grade which provided more individuals was third grade (26.4%) compared to second year which had the lowest response rate (14.4%). Onto other matters, most students had not yet completed the subject "*Human Conduct*", also known as "*Psychiatry and Clinical Psychology*", which could play a potential confounding role on those who have completed it (22.3%). Moreover, a variable which lays between sociodemographic and academic grounds and that could have a potential interest in this study is having parents who are healthcare professionals. To this question, a vast majority of participants (78.2%) answered not having health working parents. Finally, focusing on

students' mental health, 45.1% of them declared having family history of mental health disorders (Table 3).

Table 3: General description of the initial sample of medical students (*Total n was 181 for this analysis since one student answered the rest of the survey but not this part)

Variables	*Total n*	*n*
	*N=181**	
Sex:		181
Female	144 (79.6%)	
Male	37 (20.4%)	
Gender:		179
Female	141 (78.8%)	
Male	37 (20.7%)	
Others (Non-Binary, Gender Fluid, …)	1 (0.56%)	
Sexual Orientation:		174
Bisexual	28 (16.1%)	
Heterosexual	135 (77.6%)	
Homosexual	9 (5.17%)	
Others	2 (1.15%)	
Living Situation:		178
Living with parents or other close relatives	49 (27.5%)	
Living in a shared flat with other university students	109 (61.2%)	
Living in a student's boarding house	13 (7.30%)	
Living alone	7 (3.93%)	
Age:	20.9 (2.74)	175
Relationship:		178
In an open relationship (polygamy)	4 (2.25%)	
In a closed relationship (monogamy)	74 (41.6%)	
Single	100 (56.2%)	
Employment:		171
Without employment	146 (85.4%)	
Working full-time	3 (1.75%)	
Working part-time	22 (12.9%)	
Financing:		178
Funded with scholarship	39 (21.9%)	
Funded by parents	125 (70.2%)	
Self-funded	14 (7.87%)	
CCAA:		174
No	58 (33.3%)	
Yes	116 (66.7%)	
Healthcare working parents:		179
No	140 (78.2%)	
Yes	39 (21.8%)	
Year/Grade:		180
1º	40 (22.2%)	
2º	26 (14.4%)	
3º	47 (26.1%)	
4º	30 (16.7%)	
5º	37 (20.6%)	
Psychiatry:		179
No	139 (77.7%)	
Yes	40 (22.3%)	
Mental health family history:		168
No	86 (51.2%)	
Yes	82 (48.8%)	

Pre-programme Sample Description:

Previously described variables were only collected in the pre-programme survey as they were assumed to be time-stable, but the following variables have been recorded in pre- and post-programme surveys as they could potentially vary due to the passing of time or because of the SSP.

1. **Secondary Variables:**

On general health related variables, students' self-perceived global health was described as very good by 48.9% of students who responded while only 12% of students responded having a bad or fair global health. On vital events, most students expressed not having suffered any event during the last 6 months (43.4%), but 33.0% did experience at least one event, 14.8% at least two and 8.8% underwent three or more events. The most frequent vital event that students went through was having other difficulties with close family members different from serious law infractions, death or serious illness.

Looking at social support, results from the OSSS-3 revealed that most students had a self-perceived moderate social support with 52.2% of them entering in this category while 26.4% had a strong social support and 16.5% were found to have a poor social support, 9 students did not answer this scale. Risk of alcohol use disorder, measured with AUDIT-3, was found to be significant in 12.6% of students with predominance of female sex over male sex. Other substance use was reported by 22.0% of medical students surveyed.

2. **Mental Health Variables:**

Starting with variables in the mental health sphere, most students declared not having a confirmed diagnosis of mental health disorder or receiving any psychopharmacological or psychotherapeutic treatment, for those who did, the proportions were 19.8% and 24.7% respectively. However, the proportion of mental health diagnosis was significantly higher in female sex ($p < 0.05$; CrV = 0.16) as well as non-male genders ($p<0.02$; CrV = 0.21) with no differences for sexual orientation or year. Having family history of mental health disorders, on the other hand, was positively associated with having a mental health disorder diagnosis ($p<0.001$; CrV = 0.31). Furthermore, entering on the specific results for each mental health test, the level of mindful attention and awareness among medical students was of 3.8 (0.86) out of a maximum score of 6 in the MAAS, for depressive symptoms, 48.9% of students who answered the survey had symptoms compatible with

major depressive disorder according to the PHQ-9, a questionnaire that could also indicate the rate of suicidal ideation with its last item amongst responders. In this sample, the rate of students that were thinking on death or self-harming themselves more than half the days in two weeks or mostly every day stood at 4.4%.

On the field of anxiety, according to the results from the GAD-7 scale, medical students that were experiencing symptoms compatible with a generalized anxiety disorder were 36.8%. Burnout scores recorded in the SMBM on the other hand, showed that at the beginning of the programme 18.1% of students were struggling with symptoms compatible with severe burnout syndrome, for this same scale, mean total score was 3.2(1.20) out of a maximum of 7 with a mean score of 3.7 (1.54) on the physical fatigue subscale, 3.2 (1.41) for the cognitive fatigue subscale and 2.2 (1.39) on the emotional exhaustion subscale. Lastly, medical students at University of Girona see their faculty generally as an unsupportive environment for their mental health with 46.7% of them disagreeing or strongly disagreeing with the question "*Do you consider the medical school to be a supportive environment for mental health?*" and only 11.5% agreeing with it, while the rest did not agree nor disagree. This item had a median score of 2.0 (1.0).

To close this section, variability of mental health disorder symptomatology was studied for sociodemographic variables and some differences were found. Sex, gender and sexual orientation had no inter-group variability for depression, burnout or self-awareness but for anxiety more symptomatology was observed in the female sex ($p<0.02$; CrV = 0.18) and gender ($p<0.05$; CrV = 0.19) without differences between sexual orientations. The year in which students were enrolled, on the other hand, had the contrary effect, no differences between years were found for anxiety or self-awareness but they were positive in depression ($p<0.02$; CrV = 0.27) and burnout ($p<0.01$; CrV = 0.29), both showing an incremental activity as years went by (Figure 6).

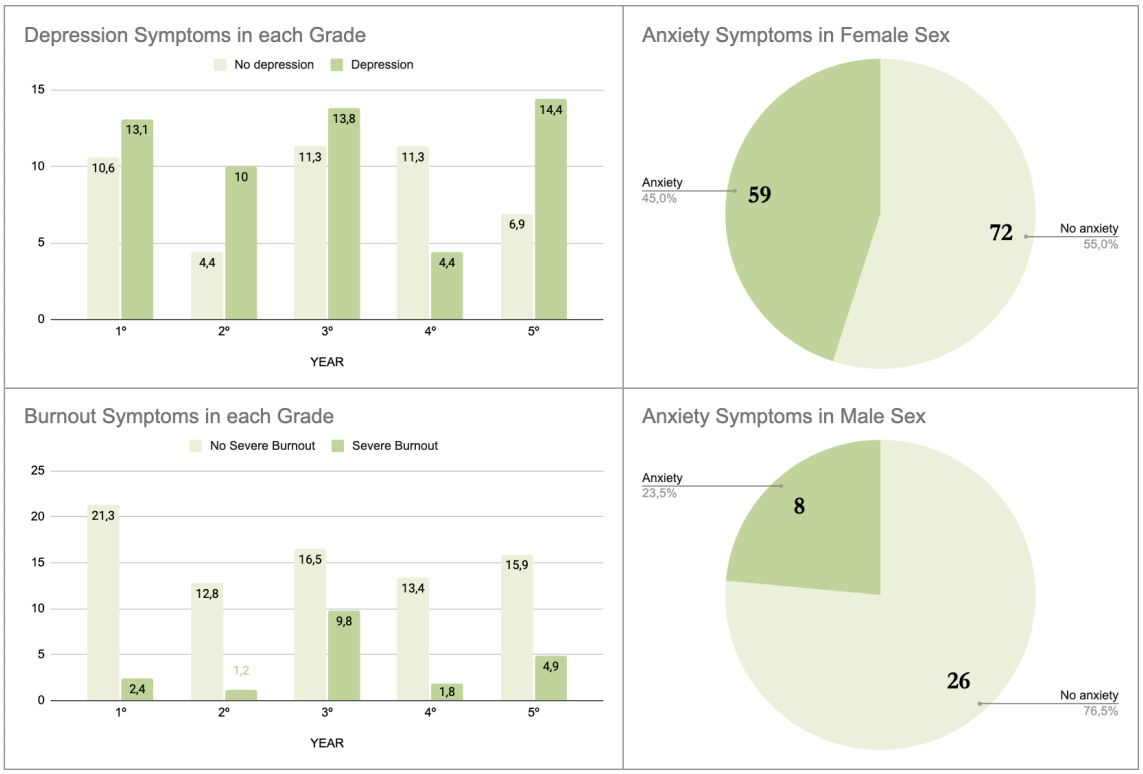

Figure 6: Anxiety symptoms in male and female and depression and burnout symptoms in the different grades.

3. Mental Health Services Knowledge:

On this matter, a vast majority of students expressed lacking knowledge on mental health services available to them with only 14.3% of them affirming to be familiar with them. When analysing each service specifically and if students would know how to access them, the most well-known service was the university's psychological service but only 22.5% of students would know how to access this service, for the rest, knowledge was lower than 11%. In addition, no differences were found between individuals who had parents working as healthcare professionals from those who didn't, as well as no variability existed between students who had mental health disorders family history, diagnosis or treatment, however, students who were in higher grades knew mental health services better than those at initial grades ($p<0.01$; CrV = 0.28), just as students who had gone through the psychiatry subject knew services better than the rest ($p<0.001$; CrV = 0.32).

Post-programme Sample Description:

1. Secondary Variables:

After 6 months, the total number of students who answered the post-programme survey as they continued to participate in the programme was 133, with 39 of them being

sentinels. In this remaining sample, global health was described as very good by the majority of responders (42.1%) while only 9% of students related their self-perceived health as fair or poor, with no differences for sex, year or other covariables. Vital events in the last 6 months were not present in 44.4% of students, while 33.8% of them reported at least one vital event with the rest explaining two or more events. From these vital events, having other difficulties with close family members different from serious law infractions, death or serious illness was again the most frequently recounted item, closely followed by death of a family member or close friend.

Moreover, students' self-perceived social support was moderate for 60.9% of them followed by a feeling of strong social support in 27.1% of surveyed students. On the other side, risk of alcohol use disorder was found to be significant in 12% of the sample with predominance of the female sex over the male sex. Other substance use was at 14.3%.

2. **Mental Health Variables:**

Upon looking at mental health related variables, it was found in the post-programme survey that 22.6% of students had a diagnosis of mental health disorder while 27.8% were receiving treatment for a mental health condition, without any difference between sexes, genders, years or other sociodemographic variables. All the same, scores for mindful attention stood at 3.8 (0.93) out of 6, while significant depressive symptoms were present in 57.9% of students surveyed with suicidal thoughts standing at rates of 6.0% using the same terms as explained above, anxiety manifestations were reported by 39.1% of students and severe burnout signs were found in 23.3% of students. Looking with more detail on burnout, the total mean score on the post-programme results of the SMBM was 3.4 (1.33) with a mean result of 4.0 (1.59) on the physical fatigue subscale, 3.4 (1.55) on the cognitive fatigue subscale and 2.2 (1.37) on the emotional exhaustion subscale. Finally, on students view of the faculty as a mental health friendly environment, 53.4% of students disagreed or strongly disagreed while only 13.5% agreed or strongly agreed, with the rest neither disagreed nor agreed. Median was again 2.0 (1.0).

Looking in-depth, inferential analyses revealed no difference of the PHQ-9 scores between sexes, genders or year as for no other covariable. The same happened for GAD-7 scores, SMBM scores and MAAS results.

3. **Mental Health Services Knowledge:**

Carrying on with this subject, 57.9% of students affirmed to have knowledge on mental health services available to medical students with a corresponding increase on knowing how to access the different services cited in the survey. The most well-known service was again the universities psychology unit with 53.4% of students claiming to know how to access it, followed by Fundació Galatea's services (38.3%) and Girona's public mental health service network (30.1%). Besides, no differences were found between students who have parents working in the healthcare system or depending on the year in which they were enrolled as well as if they had gone through the psychiatry subject or had any personal or family history of mental disorders.

Having the programme passed, the utility of it could be studied. Relationship with the sentinel was generally satisfactory with a median score of 4 (2.0) as was the relationship sentinels had with their group which resulted in a median score of 4 (1.0). Assistance to sentinel meetings was generally acceptable with 88.7% of students attending to one or more meetings, however only 30.8% of students had the 3 minimum meetings stipulated in the original design of the programme. Nevertheless, 47.4% of students had consulted their sentinel on personal matters at least once during the duration of the programme. Also, it is important to remark several factors that may help interpret the results previously exposed. Firstly, most students did not feel like needing any assistance to their mental health (72.9%), secondly, from those who expressed needing them (16.5%), 63.6% felt that the intervention of the sentinel was enough, while the rest required professional assistance and lastly, those who required professional assistance preferred to use other services different from the ones available to medical students. On the other hand, from students who responded the usefulness questions, 63.5% of students described the programme as a useful resource to access other services and 55.7% as a useful tool to increase their mental wellbeing.

Bivariant Pre-post Comparative Analysis:

Having seen that some variables vary markedly between the pre-programme survey and the post-programme questionnaire, it is time to see if these changes are statistically significant and relevant to the objectives in this investigation.

1. Mental Health Variables:

Using paired sample analyses, from this section, the variables that were of interest for this investigation were the possible changes observed in the MAAS, PHQ-9, GAD-7 scale, the SMBM and its subscales. On one hand, none of the scales used showed a statistically significant change between the pre-programme and the post-programme surveys. In consequence, none of the clinical categories in which this scale divide people suffered any statistically significant change. On the other hand, other mental health related variables such as students' assessed faculty environment o history of mental health disorder diagnosis or treatment did not vary. Tendencies however differed for each test. While MAAS, PHQ-9 and GAD-7 scores tended to decrease, SMBM, its subscales and medical school environment tended to increase. Lastly, item 9 of the PHQ was evaluated to look out for rates of suicidal ideation, yet again, no changes were detected (Table 4).

Table 4: Pre-programme and Post-programme Comparison of Mental Health Variables.

Variables	Pre	Post	p value
	N=132	*N=132*	
Global Health:			0.074
Excellent	15 (11.9%)	16 (12.1%)	
Very Good	70 (55.6%)	55 (41.7%)	
Good	29 (23.0%)	49 (37.1%)	
Fair	12 (9.52%)	11 (8.33%)	
Bad	0 (0.00%)	1 (0.76%)	
Vital Events (Midtgaard's List)	1.00 [0.00;1.00]	1.00 [0.00;1.00]	0.847
OSSS-3 score	10.6 (1.83)	10.5 (1.80)	0.546
OSSS-3 recoded:			0.271
Moderate social support	68 (54.4%)	81 (61.8%)	
Poor social support	16 (12.8%)	15 (11.5%)	
Strong social support	41 (32.8%)	35 (26.7%)	
AUDIT-3 score	2.52 (1.36)	2.24 (1.47)	0.005*
AUDIT-3 recoded:			0.789
No risk of AUD	87 (84.5%)	91 (85.0%)	
Risk of AUD	16 (15.5%)	16 (15.0%)	
DAST-1	0.22 (0.42)	0.15 (0.35)	0.060
Mental health diagnosis	0.18 (0.39)	0.23 (0.42)	0.359
Mental health treatment	0.25 (0.43)	0.28 (0.45)	0.534
MAAS score	3.80 (0.86)	3.76 (0.94)	0.650
SMBM total	3.22 (1.22)	3.37 (1.33)	0.226
Physical Fatigue	22.7 (9.36)	23.7 (9.49)	0.292
Cognitive Fatigue	16.2 (7.01)	16.9 (7.70)	0.412
Emotional Exhaustion	6.27 (4.03)	6.60 (4.15)	0.273
SMBM recorded:			0.424
No Severe Burnout	96 (80.0%)	97 (76.4%)	
Severe Burnout	24 (20.0%)	30 (23.6%)	
PHQ-9 score	8.63 (5.33)	8.82 (4.97)	0.926

PHQ-9 recoded:			1.000
Depression	56 (47.5%)	66 (50.8%)	
No depression	62 (52.5%)	64 (49.2%)	
GAD-7 score	8.69 (5.28)	8.38 (5.20)	0.405
GAD-7 recoded:			1.000
Anxiety	40 (33.1%)	44 (33.6%)	
No anxiety	81 (66.9%)	87 (66.4%)	
Medical school environment	2.38 (0.93)	2.38 (0.98)	0.998

Included in this bivariant analysis was the study of the influence of certain covariables in the progression of mental health related scores and changes in the frequencies of mental health disorder diagnosis. The covariables that were selected were "*Sex*", "*Gender*", "*Sexual Orientation*" and "*Year*" for their potential effect on the pre-post changes based on previous knowledge explained in the introduction. In spite of that, no relevant conclusions could be extracted from the analyses as none of the variables influenced how scores progressed during the 6 months that separated the pre-programme survey and the post-programme survey. Most relevant variations are shown in the following graph (Figure 7).

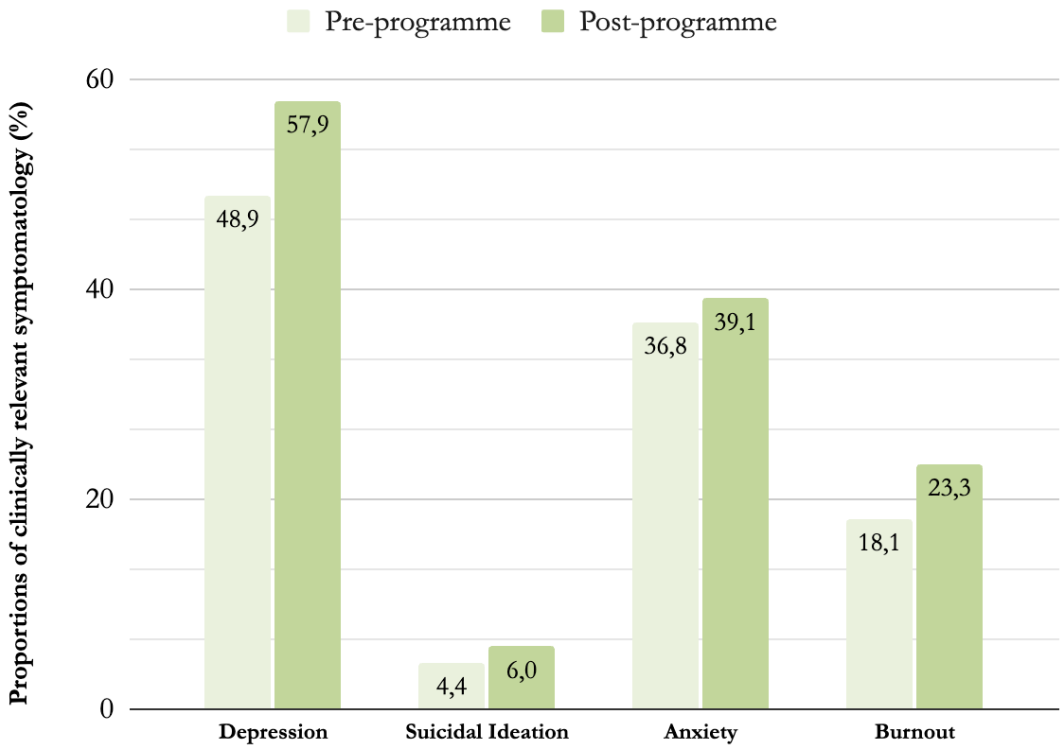

Figure 7: Comparison of pre-post proportions of clinically relevant symptoms of mental health disorders.

2. **Mental Health Services Knowledge:**

On the contrary, statistically significant changes were found for knowledge of mental health services. Firstly, general knowledge on the existence of these services increased an absolute proportion of 43.6%, which was statistically significant (p<0.001) and had an Odds Ratio of 1.53 (95% CI 1.37 - 1.70). Secondly, on the matter of knowing how to access every service in particular, all services showed a significant increase (p<0.001) on the proportion of students who understood the steps to be followed to reach this assistance (Table 5).

Table 5: Pre-programme and Post-programme Comparison of MHS Knowledge

Variables	Pre	Post	p value
	N=132	*N=132*	
MHS Knowledge:			<0.001
No	100 (82.6%)	52 (40.3%)	
Yes	21 (17.4%)	77 (59.7%)	
SAP UdG:			<0.001
No	102 (77.3%)	59 (45.4%)	
Yes	30 (22.7%)	71 (54.6%)	
XSMG:			<0.001
No	119 (90.2%)	90 (69.2%)	
Yes	13 (9.85%)	40 (30.8%)	
FG:			<0.001
No	121 (91.7%)	79 (60.8%)	
Yes	11 (8.33%)	51 (39.2%)	
SAPEM:			<0.001
No	127 (96.2%)	98 (75.4%)	
Yes	5 (3.79%)	32 (24.6%)	
Fx:			<0.001
No	131 (99.2%)	106 (81.5%)	
Yes	1 (0.76%)	24 (18.5%)	
PsicoX:			<0.001
No	130 (98.5%)	104 (80.0%)	
Yes	2 (1.52%)	26 (20.0%)	

Multivariant Pre-post Comparative Analysis:

1. **Covariables' Pre-post Analyses:**

Before evaluating the effect covariables may have on the main variables of this study, it is worth analysing if there were any pre-post changes. Most sociodemographic and academic variable were assumed to be stable but for those which were collected in both data collection periods (general health, vital events, social support, risk of alcohol use disorder and substance use) some changes revealed. Neither global self-perceived health nor OSSS-3 scores, DAST-1 or total number of vital events of the Midtgaard List

presented any substantial modification, however AUDIT-3 scores fluctuated. AUDIT-3 results presented a moderate strength significant decrease ($p = 0.005$; Rank Biserial Correlation = 0.43) with a mean change of -0.28 (95% CI -0.56, -0,10), but this change was not relevant clinically as it did not imply a change in the proportions of individuals at risk or without it.

2. **Multicollinearity Analysis:**

Multicollinearity analysis using the variation inflation factor test is essential to detect which variable are best suited to be included in multivariant analysis models, whether they use ANOVA, logistic regression or multinomial logistic models. This test informs on the degree of correlation between two or more independent variables, which could bias the real effect of single variables over the independent variable examined in the multivariant analysis if a high multicollinearity were to exist for certain factors. Moreover, from the initial covariables included to evaluate their impact on mental health tests and knowledge of mental health services, the variable "*Sex*", "*Age*" and "*Year*" were excluded for they presented severe multicollinearity with the rest of variables. This did not directly mean that these variables would not be considered for the multivariant analyses but rather that their effect was already included in other variables that remained.

3. **Mental Health Variables:**

Starting with depression symptoms, PHQ-9 scores were negatively influenced by positive increments in the total number of events ($p<0.01$), this means that the higher the PHQ-9 score is the lower possibility of experimenting an increase of vital events, nevertheless, it must be noted that the number of individuals experimenting an increase of vital events was low, so this relation could be biased for no relationship was found between PHQ-9 scores and having no change in the number of vital events or experimenting less of them. But this change had no clinical translation for the significance of the relationship was lost when using the recoded PHQ-9 measure. This exactly equal effect was found for GAD scores with again no clinical implications. Apart from these particular effects, SMBM and MAAS were not influenced by any of the covariables collected and analysed.

4. **Mental Health Services Knowledge and Number of Consults/Meetings:**

For knowledge, another approach was selected since it was not of that much relevance to know how certain covariables affected how students acquired that information but rather

to link it to more programme related factors. In this case, what it was though might have an impact on how students learned how to access mental health services was the number of times students attended the sentinel meetings or how many times they consulted them on personal matters, nonetheless, no significant relationship was found between the number of meetings or consults and the general or specific comprehension of mental health services.

Similarly to that, to answer the second objective of this investigation as well as the first secondary objective, the relationship between the number of consults and meetings and other secondary variables was analysed, finding only that having a mental health diagnosis was inversely associated with requiring more than five consults, in other worths, students who had a mental health disorder diagnosis were less probable to feel in the need of consulting their assigned sentinel more than five times ($p = 0.009$).

5. **Correlation Between Instruments:**

A correlation matrix was run to test how scores in the different mental health scales used related between each other finding that most of them had a correlation. MAAS scores were inversely associated to PHQ-9, GAD-7 and SMBM meaning that those students who had higher self-awareness and attention were least probable to show symptoms of depression, anxiety or burnout. On the contrary, PHQ-9, GAD-7 and SMBM were all three positively correlated meaning that higher scores in one of the tests would increase the chances of getting higher results on the other two (Figure 8).

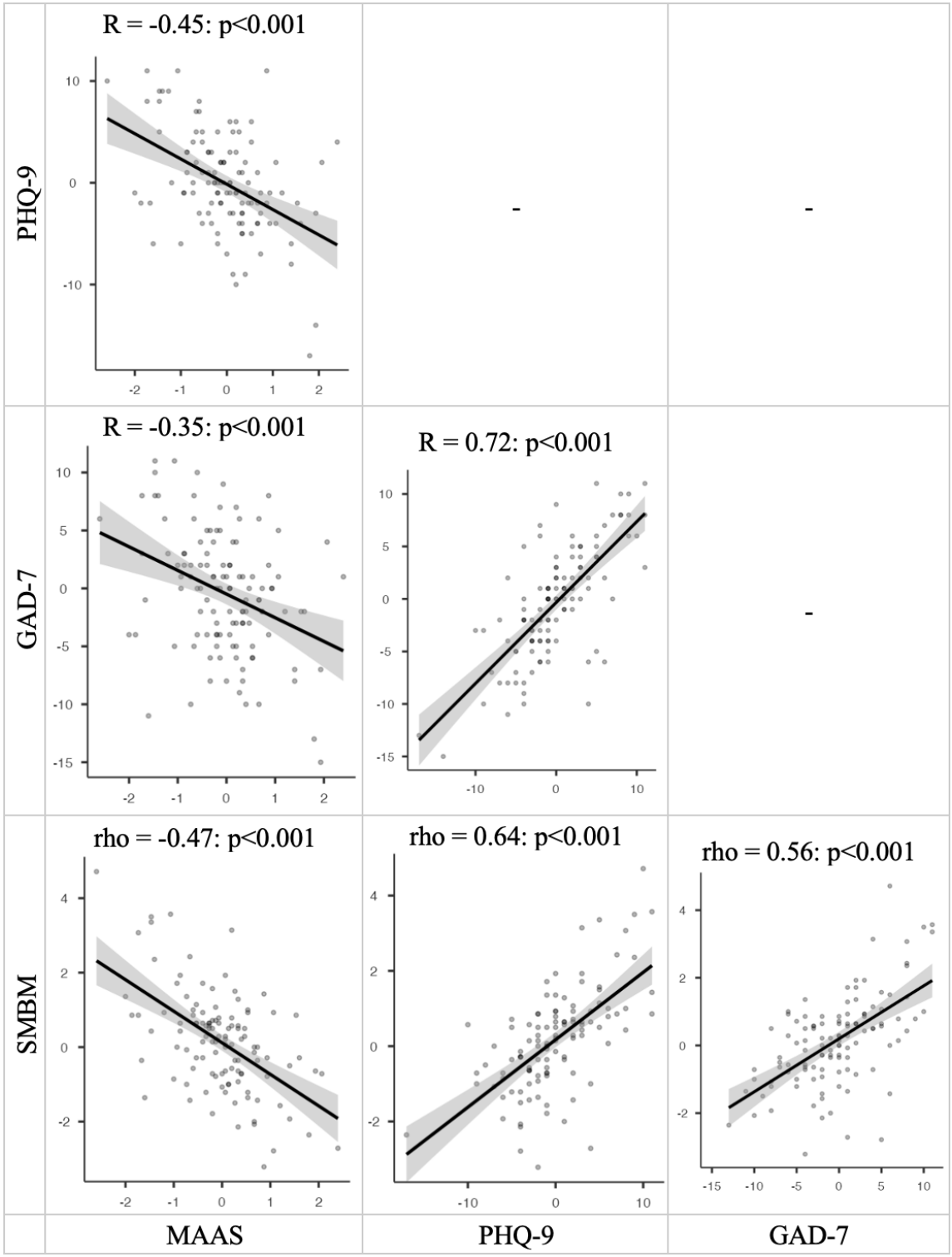

Figure 8: Correlation Matrix between mental health related scales (MAAS, PHQ-9, GAD-7, SMBM)

Analysis of the "*Sentinel Effect*":

The purpose of this exploration was to evaluate possible differences between students who participated as sentinels compared to those who were simply enrolled in the programme. For this reason, the analysis was carried out in two ways, firstly by doing a matching process between sentinels and non-sentinels and secondly by doing an adjusted comparison between sentinels and non-sentinels without a matching process. This matching process consisted in selecting a non-sentinel pair for every sentinel taking into account sociodemographic and academic variable so that both groups would be as similar as possible in those terms, eliminating the potential modifier effect of this variables on the hypothetical differences there might exist between groups. It is important to consider that using the matching process implies a drastic reduction of the sample size and the exclusion of certain groups such as 1st year students since there were no sentinels belonging to that grade. On the other hand, the adjusted model compared the whole population of non-sentinels to the sentinels using linear regressions and multinomial logistic models.

Going into detail, no differences were found for most of the variables analysed except for personal history of mental disorders and SMBM scores. Burnout scores were significantly higher for students who worked as sentinels compared to those who didn't, with both analyses showing statistically significant associations ($p = 0.003$ with matching; $p = 0.005$ without matching), however, when the recoded version of the SMBM score was used in the comparison, only the adjusted model showed a possible minimal difference in favour of sentinels meaning this change in scores could have translated into a change in the proportions of sentinels with clinically relevant burnout (OR = 1.24 (95% CI 1.02 - 1.52); $p = 0.04$). Similarly, according only to the adjusted model sentinels showed a slightly higher proportion of personal history of mental health diagnosis (OR = 1.26 (95% CI 1.04 - 1.53); $p = 0.02$). Finally, this analysis also revealed that knowledge of mental health services was higher in sentinels compared to non-sentinel students (Table 6).

Table 6: Odds Ratios of the Sentinel Effect on Mental Health Variables and MHS Knowledge

Adjustment	Variable	OR (95% CI)	p value
No Adjustment	GAD-7 recoded	1.00 (0.83 - 1.19)	0.97
Matching	GAD-7 recoded	0.96 (0.75 - 1.22)	0.72
Adjusted	GAD-7 recoded	0.97 (0.77 - 1.23)	0.81
No Adjustment	PHQ-9 recoded	1.01 (0.83 - 1.22)	0.94
Matching	PHQ-9 recoded	1.02 (0.78 - 1.32)	0.90
Adjusted	PHQ-9 recoded	1.09 (0.83 - 1.42)	0.54
No Adjustment	SMBM recoded	1.16 (0.99 - 1.37)	0.07
Matching	SMBM recoded	1.22 (0.97 - 1.54)	0.09
Adjusted	SMBM recoded	1.24 (1.02 - 1.52)	0.04*
No Adjustment	Mental health diagnosis	1.21 (1.04 - 1.42)	0.02*
Matching	Mental health diagnosis	1.24 (0.98 - 1.56)	0.08
Adjusted	Mental health diagnosis	1.26 (1.04 - 1.53)	0.02*
No Adjustment	MHS Knowledge	1.60 (1.35 - 1.89)	<0.001*
Matching	MHS Knowledge	1.66 (1.35 - 2.03)	<0.001*
Adjusted	MHS Knowledge	1.75 (1.41 - 2.19)	<0.001*

Statistical Power of the Study:

Initial participation in the study was certainly elevated with approximately 50% of eligible students participating in the programme and sufficient number of sentinels recruited. From these 182 students recruited at the beginning, 132 completed both pre and post programme surveys, which translates in a loss rate of 27.5% in total. Sentinels on the other hand went from an initial sum of 41 to a post programme total of 39, a loss rate of only 4.9%. Bearing these alterations in mind, the statistical power for the main objective was calculated, being that, to observe an increase in students' knowledge of mental health services, resulting in a 100% statistical power by accepting an alpha risk of 0.05 in a two-tailed test with 182 subjects in the first group and 133 subjects in the second group to recognize as statistically significant difference from 0.143 in the first group to 0.579 in the second group.

Furthermore, to understand in depth if there might be any particular event that made students not answer the second survey, a comparative analysis was carried out to look out for those potential factors. In general, analysis showed no significant differences between students who left the study (n = 50) and those who stayed (n = 132) except for the variables "*Year*", "*Global Health*", "*OSSS-3*" and "*Medical School Environment*" (Table 7). Attending to the grade in which students were enrolled, the probability of leaving the

study was higher for those in 1st year while it was lower for those in 5th, on the matter of self-perceived general health, those students who perceived being worse were more likely to not answer the second questionnaire, similarly, students who scored lower for social support in the OSSS-3 had also more chances of leaving and finally, those students who at the beginning of the study sensed the faculty as a slightly more mentally healthy environment showed higher probabilities of not answering the post-programme survey (see Annex 16 for extended version of Table 7).

Table 7: Comparative Analysis between Stayers and Leavers

	Stayers	Leavers	p value
	N=132	N=50	
YEAR:			0.014
1º	22 (16.8%)	18 (36.7%)	
2º	18 (13.7%)	8 (16.3%)	
3º	37 (28.2%)	10 (20.4%)	
4º	21 (16.0%)	9 (18.4%)	
5º	33 (25.2%)	4 (8.16%)	
Global Health:			0.013
Excellent	15 (11.9%)	9 (18.8%)	
Very Good	70 (55.6%)	15 (31.2%)	
Good	29 (23.0%)	15 (31.2%)	
Fair	12 (9.52%)	7 (14.6%)	
Bad	0 (0.00%)	2 (4.17%)	
OSSS-3 score	10.6 (1.83)	9.62 (1.91)	0.003
OSSS-3 recoded:			0.009
Moderate social support	68 (54.4%)	27 (56.2%)	
Poor social support	16 (12.8%)	14 (29.2%)	
Strong social support	41 (32.8%)	7 (14.6%)	
Medical school environment	2.38 (0.93)	2.79 (1.15)	0.038

DISCUSSION:

Programme Creation and Evolution:

Previous knowledge on medical students view on the matter of mental health showed that most of them already felt overwhelmed by their curricular activity (49), therefore, imposing a compulsory programme inside their curriculum, as some suggest (80), wouldn't have given the satisfactory results obtained and explained above. In addition, as students had formerly said, advice from a peer or friend is much more valued and taken into consideration than the counsel a professor could give never-minding their experience (70). For this reason, putting a fellow student as a referent to solve mental health related doubts was the central concept from which the programme developed. This idea was also bolstered by the fact that mentoring is already a highly used and valued resource (65,70). On the other hand, by putting students as the link between other classmates and mental health services, it is hoped that stigma was minimized, that fear of unwanted interventions was reduced, since sentinels did not intervene directly but rather gave support when a student decided to seek professional assistance, and that, indirectly, consciousness between future doctors on the need to avoid prejudiced judgement on such matters was created.

Bearing this last though in mind, setting up a peer-mentoring programme was not enough, for previous investigations had shown that setting up a simple academic-based mentorship had no impact on students mental health (60), nevertheless, if this mentorship programme was to be focused not only in academic matters but also in mental health support, the results expected would be satisfactory as previous peer-mentoring programmes had shown (40). In addition, to make sure this point of view was introduced and that any uncertain or even adverse situation were avoided, sentinel students received an intensive training that allowed them to manage these scenarios by giving them the sufficient tools but at the same time delineating very clearly the extension of their responsibilities, since their prime objective was not to give professional advice but rather to guide students in need to reach it the quickest way possible fostering their autonomy. To justify the success of this training, it must be remarked that none of the collaborating professors or the main investigators had to intervene or were asked to do so during the whole duration of the programme.

Onto other matters, previous (60) and present results on the knowledge of mental health services for medical students made it necessary to set this lack of awareness as the main objective of the programme, for it was thought that no use could be made of setting up a new mental health care programme when there were already many established and had such little recognition between potential users. Also, by fixing this increase in mental health services' knowledge as a main objective, the guiding nature of sentinels was strengthen as well as more evidence on the matter was created, for only one study of the revised bibliography mentioned anything about recognition or usage of already existing resources (60), in addition, by aiding students to recognise better the services they can attend, a sense of empowerment was enhanced. Results on this pilot test exhibited a very clear rise in medical students' knowledge of mental health services as well as on the understanding of how to access every specific service medical students at University of Girona have at their disposal. It is recognised by the investigators, however, that strictly speaking, the lack of control group hinders the possibility of directly relating this results to the SSP, but since no other secondary variable collected in this study had shown any interaction with knowledge and that no other action on mental health was taking place at the same time as this programme was developing, a relationship between the programme and the remarkable results on knowledge of the mental health resources obtained can be deduced. Lastly, the fact that on pre-programme responses there were significant differences on this aspect between higher years and lower years and that these differences disappeared after the programme, boosted the latter deduction, for there was a homogenization of awareness between grades.

Looking in depth on programme structuring, for methodological purposes, time ranges had to be set for the development of every meeting to avoid potential confusion on results. Although these adjustments had a methodological beneficial implication, it constrained the liberty of sentinels and students to set their meetings in more personalised manner, but, since results have shown that the number of consults and meetings do not influence the degree of knowledge students acquire of the use of mental health services, more lax instructions could be set for future editions of this programme. Related to this, during investigator-sentinel meetings, a generalized sense of frustration derived in sentinels because of their inability to make students attend sentinel-students meetings but, when focusing on this feeling, investigators were clear at explaining that no problem existed in the fact that students were not interested in attending meetings since that could simply

mean that students were in no need of assistance which is actually a positive result. In addition, the fact that the number of meetings or consult was not related to a higher or lower increase in mental health services' knowledge could help boost sentinels' confidence in their role, for the assistance to a single meeting or their presence and continuous output of information was sufficient to obtain the results explained above. Lastly, the only statistically significant relationship found for the number of consults was with having personal history of mental health disorders. This associations entailed that having this personal history implied a lower probability of consulting the sentinel more than 5 times, which could be explained by the fact that people with a history of mental health diagnosis would have a firmer contact and follow-up by mental health services therefore, being in less need of the sentinel's assistance on how to access these services.

To end this section, it is worth noting that, as students from other universities around Spain (49) and Catalonia (59) expressed, Girona's medical students' opinion on their faculty being a mental health friendly environment was not any different. Results from this analysis showed that satisfaction with the faculty's position on mental health was certainly low and that these results did not change in six months even though the SSP was established. This phenomena can easily be explained by the fact that despite allowing the programme to develop, the faculty's management team took no part in its establishment or support, although there were some teachers who actively participated for they understood the magnitude of a problem that had been shown to be significant in medical students, not only in studies done worldwide (54–58), in Spain (60–63) or in Catalonia (59), but in the same faculty (64) this programme developed.

Feasibility and Safety of the SSP:

As seen above, applying a programme such as the SSP is not only feasible but also very cost-effective, for expenditure on the programme was minimal and the suggested positive effects were very significant. Also, the utility students gave to the programme should encourage its further application and improvement to reach even higher levels of fulfilment. However, institutions should never loose from sight the real source of medical students' mental health problem, the studies and environment themselves. Authors agree with the fact that institutional and curricular changes suggested by some other authors (65,69–71,79) would have a much higher impact on students' mental health than any of the revised programmes (60,72–78,81–83) nonetheless, they also recognise the fact that

these changes can take a long time to take place while these programmes, as well as the present intervention, can be applied without any major delay to confront this complex plight while working on it at its roots through major curricular changes such as the ones suggested by previous studies (65,69–71,79). Anyhow, the main investigator recognises that to continue expanding this programme, much more support will have to be given from institutions.

At the same time, it is recognised that this evoked positive effect of the programme might have been affected by the discontinuity of a not negligible proportion of students who, without any specified reason, did not answer the post-programme survey. However, as demonstrated in the "*Results*" section, the statistical power of the study was excellent to prove there was a significant increase in students' knowledge of mental health services. Although, differences between those who answered both surveys and those who didn't raised some points, especially because those students who did not answer the follow-up survey and presumably did not complete the programme could have been most benefited by the SSP since they belonged to lower grades, expressed worst self-perceived general health and social support but were no different to others in terms of mental health or knowledge of mental health services. Therefore, this paradox should encourage the improvement of the programme to better tend those in need.

On the matter of security, the design of the present research does not allow for a safety evaluation to be conducted as no control group was established, yet again, through statistical analysis some suggestions on the matter can be considered. The assurance of this programme must be guaranteed in future investigations in two ways, firstly by proving there is no deterioration of mental health in students who participate and secondly, by demonstrating no significant degeneration of sentinels' mental health compared to the rest of the students. In the present study, these two lines were preliminarily evaluated but the first line will be discussed in the following part of the discussion. The second aspect, on the other hand, was conducted doing a comparative analysis between sentinels and non-sentinels using the methods explained in the "*Results*" section. This exploration suggested that on a clinical level sentinel students did not experiment a higher burden of mental health psychopathology compared to those students who did not participate as sentinels. However, even though burnout levels were found to be slightly higher in sentinel students, this change was only observed in one of the comparative analyses so more investigations should be done to extract stronger evidence

on this phenomenon. These results imply, at least with preliminary analyses, that carrying out this task did not put students at a higher risk of suffering more mental health disorders than the rest of students, although better conclusions would be drawn if they were to be compared to an actual control group.

Impact in Students' Mental Health:

These analyses were again limited by the lack of control group, meaning that changes in mental health symptomatology could not strictly be associated to the effects of the SSP for variations due to chance could not be ruled out, despite that, by controlling for so many potentially modifier variables and considering previous studies in the same population, some interesting judgements can be made. Also, before starting to discuss results obtained, it is important to remark once more that in this study mental health related proportions do not reflect actual diagnoses of mental disorders, only symptomatology that could suggest their existence, therefore, it is much likely that the mental health picture given is an overestimation of reality were adaptative symptoms are confused with proper psychopathological manifestations.

Firstly, the medical school at Girona's University proved to be no exception to the high rates of psychopathology other medical schools have shown, exhibiting major differences in depressive symptomatology compared with internationally revised data which showed lower rates (54), but at the same time presenting similar rates of anxiety compared to international revisions (57). On a more local scale, Girona's medical students presented similar rates of anxiety and depressive signs to other Spanish (48,49) and Catalan university students (52) although they were higher than other Spanish medical students (60,61) but when comparing them to previous analysis on the same population (64), a paradoxical effect is observed, for depressive symptoms have seemed to increase substantially and anxiety signs have reduced drastically. On burnout syndrome, unfortunately, due to the use of different measuring instruments, rate comparison would not be appropriate, however, the rates obtained in this study were significantly lower than expected but this phenomenon could be possible since Illán et al. already found lower rates (64) in this study's population compared to Spanish medical students (61) and international revisions (58). Lastly, suicidal ideation was found to be practically the same as in other Catalan university students (52) but much lower than in Spanish medical students (61) and internationally revised data (54) (Table 8).

Table 8: Comparison of mental health disorder symptomatology amongst international, Spanish and Catalan medical students and Spanish and Catalan university students. [(*) Used the same instruments as used in this study; (†) Used different validated instruments; (·) Instruments not specified; (^) Multiple instruments evaluated]

		Depression (%)	**Suicidal Ideation (%)**	**Anxiety (%)**	**Burnout (%)**
SSP	Pre	48.9	4.4	36.8	18.1
	Post	57.9	6.0	39.1	23.3
C. Illán et al. (2023) (64)	Pre	17.1*	-	54.5*	24.4†
	Post	24.1*	-	58.0*	31.6†
P. Capdevila-Gaudens et al. (2021) (61)		24.7†	11.0†	24.7†	36.8†
B. Atienza-Carbonell & V. Balanzá-Martínez (2020) (60)		39.1†	-	-	-
J. A. Amador et al. (2024) (52)		46*	9.5*	42*	73†
Ministerio de Universidades et al. (2023) (49)		51.5·	-	51.0·	-
L. S. Rotenstein et al. (2016) (54)		27.2^	11.1^	-	-
T. Tian-Ci Quek et al. (2019) (57)		-	-	33.8^	-
A. Frajerman et al. (2019) (58)		-	-	-	44.2^

Secondly, differently to other mentoring programmes where specific disorders were targeted (34,35,37,40), this programme followed a more generic approach since it was not its main objective to address mental health disorders in medical students. This fact may have hindered the programme's ability to improve certain aspects of students' mental health but at the same time it did not pose any degenerative effect, on the contrary, if the present results were to be compared to the natural incremental evolution Illán et al. saw in their longitudinal evaluation of mental health symptomatology of medical students at the university of Girona (64), one might think that the programme helped to stabilise these symptoms since no changes were observed between pre- and post-programme results. Anyhow, while this same trend was observed in many other studies for the different disorders explored (61–63), others did not appreciate it (55) or even noticed an inverse tendency (56), reinforcing the need of further research on the matter.

Thirdly, on mental health determining factors, it was not this investigation's objective to evaluate how certain factors affected students' mental health, but it is an objective of this study to learn how adjustments to the programme might be made in order to offer a better service to students using it. On one hand, while at the beginning of the programme differences were observed on the prevalence of mental health disorders according to sex, gender and year, during the duration of the programme these differences seamed to disappear without posing any significant effect on the progression between pre and post surveys. It also must be said that the statistical relations found on the initial survey had a

relatively low strength according to Cramer's V coefficient. Likewise, no other influencing factors were determined. These finding, or better said, these lack of findings were in line with some previous investigations (56,64) although they entered in conflict with others (61,67). This incident, could be explained by several factors, for instance, it is of no doubt that the major part of these dissimilarities are based on discriminatory behaviours toward certain groups of society, specially non-male and non-heterosexual collectives (2,18), therefore, even though these discriminatory conducts happen in society nowadays, thanks to the work of student representatives, student associations and at some degree institutions, these practices have been extensively reduced in medical schools such as the one where this study develops, giving a possible explanation to the variation of findings on mental health determinants amongst medical students. At the same time, this programme could have reduced the stigma on mental health disorders for males, who are known to repress their feelings more deeply (110), might have felt more free to talk about their emotions and therefore explaining them without this filter.

Lastly, it was a secondary objective of this investigation to prove that by establishing a programme where students could talk about their mental health with the guidance of formed mentors, participants would get higher insight on their mental health status. To prove this, positive changes were to be observed in the MAAS scores but unfortunately, this hypothesis could not be verified since no variations in MAAS scores were observed. The reason for this might have been that the MAAS had already proven a poor sensitivity to change (89) and that this sensibility was not improved in a much longer intervention as though, in addition, this scale was related to well-being (88) rather than insight cognition therefore, to evaluate this capacity of recognising one's emotion it might be interesting for future research to evaluate changes in alexithymia with validated instruments such as the Toronto Alexithymia Scale (111).

Limitations and Future Improvements:

1. Of the Study:

Main limitations of this study are rooted in its design. Firstly, as it was justified in the "*Study Design*" section, doing a quasi-experimental study was the most appropriate approach to test the implementation of a newly developed public mental health intervention for organizational and ethical issues. However, by having a single group, therefore no control group, the conclusions extracted were not able to be attributed

strongly to the programme itself meaning that changes due to chance could never be completely ruled out, but considering the amount of factors analyses that were controlled for and the strict methodological procedures that were followed, conclusions can be drawn from the effects the SSP might have had with certain confidence, but, for future investigations a proper clinical trial design should be used. On the other hand, investigators are aware that selection biases are strongly present in investigations which use surveys as a measuring tool, for individuals who are more interested in the study subject will tend to respond more to the survey. To minimize this bias, multiple presentations were carried out to all students in physical and on-line formats to reach the highest number of students possible as well as presenting the programme not only as a way for students with mental health problems to get assistance more easily but also as an opportunity for all students to create mentally healthy environments.

Moreover, it is true that students who suffer importantly due to their mental health disorders are more probable to drop-out of medical school (112) and would therefore not be included on the study or benefit from the SSP, although it has to be considered that this is a medical school-based programme which is linked to medical school-based resources, thus it would require a more general approach to evaluate if a programme such as the SSP could be implemented in other academic or even non-academic scenarios. Similarly, students who are incapacitated due to health problems, including mental health disorders, to attend the programme presentations, could have been excluded from this study. To avoid this, not only were recruitment deadlines announced to students with sufficient advanced notice, but they also took place during seven-day periods in hybrid formats, giving students who couldn't attend their assigned presentation day a chance to attend another day and still participate.

In addition, because psychometric tests are used to evaluate mental disorder symptoms instead of psychiatric structured interviews, a measurement bias could appear overestimating or underestimating the real rates of psychopathology amongst medical students. Therefore, to minimise this factor, the most accurate and appropriate measuring instruments were selected as explained in the "*Study Procedures*" section to identify this symptomatology reliably. Furthermore, to avoid bias that could originate from the observer, in this case, the main investigator, some measures were taken. Firstly, the main investigator did not intervene during the data collection processes to avoid influencing the response students might give in their surveys. Secondly, meetings between the main

researchers and the sentinels were strictly meant to evaluated only methodological problems that raised during the programme. Lastly, students were randomly assigned to each sentinel to avoid any possible influence on the actions taken by the sentinel due to biased assignments. Other biases that were considered during this study were the Hawthorne effect or attention bias (113), which was minimised by explaining students and sentinels that during the SSP there would be no investigator observing their behaviour, and the initial evaluation bias (113), which has been taken care of by thoroughly evaluating previous evidence and the methodology applied in this study.

Lastly, a comment on limitations due to sample size. As discussed previously, evaluation of the statistical power of the sample gave authors the confidence of offering the public strong conclusions based on robust analyses for the main objectives of this work, anyhow, when secondary objectives were explored, mostly in the field of mental health determining factors, some groups had a very limited representation meaning that any absolute change would translate into an important relative change and could potentially bias the analysis giving an overestimation or underestimation of the effect this factor might have. To elude this in future research, the sample size will have to be necessarily greater, a goal that can only be achieved by doing a multicentre study, but most importantly, data loss will have to be minimised more effectively reinforcing present measures such as periodic meetings with the sentinels and adding new ones into future study designs although it must be said, that compared to previous research done in similar time periods and the same population (64) far greater general loss (45.8%) was shown compared to this study's (26.9%).

2. **Of the Programme:**

Briefly, the programme was shown to develop smoothly in an environment such as Girona's school of medicine for it is a rather small faculty which makes it easier for its members to keep in closer contact and because it counts on many mental health resources students can access free of charge, notwithstanding, if this programme were to expand to other universities the model will have to be adapted to that environment for example by increasing the number of sentinels and forming them on the services their universities have available. The same would have to be done if the programme were to be expanded to other studies different than medicine which should be considered since mental health instability has been demonstrated to be a generalized rather than a focal problem (49,52).

Deepening on the structure of the programme, investigators also took into consideration some suggestions made by students and sentinels on the development of the programme. Firstly, a significant amount of students proposed that this programme should focus on lower grades only but considering previously revised evidences and results obtained in this study on the incremental behaviour of mental psychopathology as grades go up it would seem unresponsible to leave older students without any assistance, similarly, another proposal was to change the way mentorship was organized with students from the year above tutorizing students from the year right below by modifying this arrangement so, for example students in 5th year could sentinel students in 3rd year at the same time this students tutorise 1st years. It is an interesting proposal that should be studied for further research, but it does not solve a problem found in the present programme which was how to cover students in higher years. The solution proposed in this programme, which consisted in creating a second group in 5th year, raised some doubts in a few sentinels and students but at the same time was positively valued by other, which relates to another comment made by students who asked for more individualised and personalised spaces. This last proposal was singular to the main researcher since due to the lack of full participation of all medical students in Girona's Faculty of Medicine, initial sentinel-student ratios were reduced to an average of one sentinel per three to five students resulting in even smaller groups than what was expected, nevertheless, going towards a more individualised model must be considered for future research. Lastly, it is important to mention how students valued highly motivated sentinels over poorly motivated, raising doubts about whether students who want to participate as sentinels should undergo a more thorough selection process or other motivational tools should be included for sentinels during the programme to maintain high motivation.

Conclusion:

To conclude,

- Evidence has shown that mental health conditions are highly prevalent amongst medical students at all geographical levels (54–64,67,68) with Girona's school of medicine being no exception.
- University institutional measures to solve this situation have been scarce, leaving students helpless in some situations (59). But fortunately, initiatives have begun to develop in different sites around the globe with promising results (70–83) at the same time governments start to focus on this predicament (53), however, none of the revised programmes were based on a peer-mentoring programme aimed to facilitate students' access to already existing professional mental health services.
- By creating and evaluating a programme such as the Student Sentinel Programme, authors have filled a knowledge gap on the ways to address through public mental health measures the prevention of mental health disorders and the promotion of mental wellbeing in medical students, proving that such programme is feasible and suggesting its safety as well as its usefulness as a tool to increment wellbeing of medical students and their knowledge on how to access mental health services available to them, consequently proving the first hypothesis of this study.
- The second hypothesis could not be proven since the instrument used has shown not to be the most adequate one for this purpose, however other instruments have been proposed so that this hypothesis can be reformulated and reconsidered in future research.
- Thanks to the production of a thorough methodological protocol and the evaluation of the maximum number of mental health determining factors, risk of biases was minimized, making it possible to accomplish all objectives setting a base on which further research can be constructed to prove the real efficacy of the SSP as a tool to promote mental wellbeing in medical students.
- At the same time, the burden of psychopathological manifestations has been demonstrated in hopes that institutions will act accordingly to address the real source of this quandary.

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Annexes:

Annex 1: Fundació Galatea Training Content.

Session	Content	Evaluation Method
1	Definitions and peculiarities of Mental Health. What do we know about the mental health of medical students? Risk factors and protective factors.	Assistance. Students' opinion on the utility and interests of each session. Proposals for improvement proposed by the students.
2	Anxiety, Burnout and Depression: Manifestations and warning signs. Other psychopathological syndromes.	
3	Minimal advice and approach strategies.	
4	Tools for the basic support of students and the promotion of self-care.	
5	The experience of the Galatea Foundation. The Mental Health Plan for Health Sciences Students and Network of Support Resources.	
6	Case studies and final reflections.	

Annex 2: Confidentiality Agreement for Sentinel Students.

Document de Compromís Individual de Confidencialitat

Jo, ……, estudiant de la Facultat de Medicina de la Universitat de Girona que participarà en l'Estudi del Programa d'Alumnes Sentinella com a Sentinella, manifesto que:

1) Tractaré la informació de les persones que em consultin en qualitat d'alumne sentinella en condicions d'estricta confidencialitat.
2) No desvetllaré la informació sotmesa a avaluació ni permetré que altres persones ho facin.
3) No utilitzaré la informació a què tingui accés per cap altre objectiu que no estigui relacionat amb la meva activitat com a sentinella ni permetré que altres persones ho facin.
4) Eliminaré de manera adequada la documentació i els materials confidencials després de cada reunió o consulta i només custodiaré aquelles dades que siguin necessàries per al propòsit de l'Estudi del Programa d'Alumnes Sentinella o per a la continuïtat assistencial del consultant.
5) Preservaré la confidencialitat de la informació relativa a les persones, les llars i/o les organitzacions identificables que figurin en el conjunt de dades.
6) Informaré immediatament a l'investigador responsable de qualsevol violació de les normes de confidencialitat establertes en el compromís de confidencialitat o en les condicions d'ús de les dades confidencials amb finalitats científiques.
7) No permetré que usuaris no autoritzats tinguin accés a qualsevol dada personal dels estudiants que participen en l'Estudi del Programa d'Alumnes Sentinella.
8) No tractaré d'identificar cap registre individual (persona, llar, empresa, etc.) en el conjunt de dades, ni afirmaré que ho he fet.
9) No publicaré o divulgaré cap informació o resultat que identifiqui qualsevol registre individual o que pugui conduir a la identificació de qualsevol registre individual.
10) Utilitzaré el conjunt de dades únicament per als objectius especificats a la proposta d'investigació o per a dur a terme la meva actuació com a sentinella dintre de les meves competències descrites a continuació:
    a) Assistir als estudiants que m'hagin sigut assignats a accedir als serveis proveïdors d'atenció a la salut mental.

b) Donar un consell mínim en cas de que sigui necessari dintre de la meva formació com a alumne sentinella.
c) Mantenir reunions periòdiques, amb un mínim de tres reunions durant els sis mesos que duri la intervenció de manera individual o grupal amb els estudiants que m'hagin sigut assignats.
d) Facilitar un mètode de contacte a elecció pròpia als estudiants que m'hagin sigut assignats.
e) Crear espais segurs per a facilitar l'establiment de relacions de confiança amb el estudiants que m'hagin sigut assignats.
f) Promocionar l'autocura entre els estudiants que m'hagin sigut assignats.
g) Notificar qualsevol situació de risc per a qualsevol alumne que participi en el Programa d'Alumnes Sentinella als professors identificats com a responsables o a l'investigador principal.
h) Notificar qualsevol situació que pugui requerir una substitució del sentinella als professors identificats com a responsables o a l'investigador principal.

Declaro que he llegit totes les clàusules anteriors, que soc responsable de l'ús correcte de les dades i del sistema d'accés a aquestes, i que, si no compleixo amb aquestes clàusules, se'm retirarà l'accés al conjunt de dades i seré responsable de qualsevol altra sanció que pot determinar el meu centre de recerca.

Signatura de l'alumne sentinella.

Girona, …… d…… de ……

Annex 3: Confidentiality Agreement for Collaborating Teachers.

Document de Compromís Individual de Confidencialitat

Jo, ……, professor/a de la Facultat de Medicina de la Universitat de Girona que participarà en l'Estudi del Programa d'Alumnes Sentinella com a professor/a col·laborador/a, manifesto que:

1) Tractaré la informació de les persones que em consultin en qualitat professor/a col·laborador/a en condicions d'estricta confidencialitat.
2) No desvetllaré la informació sotmesa a avaluació ni permetré que altres persones ho facin.
3) No utilitzaré la informació a què tingui accés per cap altre objectiu que no estigui relacionat amb la meva activitat com a professor/a col·laborador/a ni permetré que altres persones ho facin.
4) Eliminaré de manera adequada la documentació i els materials confidencials després de cada reunió o consulta i només custodiaré aquelles dades que siguin necessàries per al propòsit de l'Estudi del Programa d'Alumnes Sentinella o per a la continuïtat assistencial del consultant.
5) Preservaré la confidencialitat de la informació relativa a les persones, les llars i/o les organitzacions identificables que figurin en el conjunt de dades.
6) Informaré immediatament a l'investigador responsable de qualsevol violació de les normes de confidencialitat establertes en el compromís de confidencialitat o en les condicions d'ús de les dades confidencials amb finalitats científiques.
7) No permetré que usuaris no autoritzats tinguin accés a qualsevol dada personal dels estudiants que participen en l'Estudi del Programa d'Alumnes Sentinella.
8) No tractaré d'identificar cap registre individual (persona, llar, empresa, etc.) en el conjunt de dades, ni afirmaré que ho he fet.
9) No publicaré o divulgaré cap informació o resultat que identifiqui qualsevol registre individual o que pugui conduir a la identificació de qualsevol registre individual.
10) Utilitzaré el conjunt de dades únicament per als objectius especificats a la proposta d'investigació o per a dur a terme la meva actuació com a professor/a col·laborador/a dintre de les meves competències descrites a continuació:
    a) Assistir als estudiants i els sentinelles que ho sol·licitin a accedir als serveis proveïdors d'atenció a la salut mental.

b) Facilitar un mètode de contacte als estudiants i els sentinelles que m'hagin sigut assignats a elecció pròpia.
c) Crear espais segurs per a facilitar l'establiment de relacions de confiança amb als estudiants i els sentinelles que m'hagin sigut assignats.
d) Notificar qualsevol situació de risc per a qualsevol alumne que participi en el Programa d'Alumnes Sentinella a l'investigador principal.
e) Notificar qualsevol situació que pugui requerir una substitució del sentinella a l'investigador principal.

Declaro que he llegit totes les clàusules anteriors, que soc responsable de l'ús correcte de les dades i del sistema d'accés a aquestes, i que, si no compleixo amb aquestes clàusules, se'm retirarà l'accés al conjunt de dades i seré responsable de qualsevol altra sanció que pot determinar el meu centre de recerca.

Signatura del professor/a col·laborador/a.

Girona, …… d…… de ……

Annex 4: Consensus Document for the Development of the SSP.

Universitat de Girona
Facultat de Medicina

Document de Consens per al Desenvolupament del Programa d'Alumnes Sentinella

Per a assegurar un correcte desenvolupament de la prova pilot del Programa d'Alumnes Sentinella i de la seva respectiva avaluació en el marc del Treball de Fi de Grau, les parts sotasignants acorden:

- Que el tutor i alumne encarregats tenen permís per a dur a terme a la Facultat de Medicina de la Universitat de Girona la prova pilot del Programa d'Alumnes Sentinella i la seva avaluació.
- Que el tutor i alumne encarregats i la facultat es mantindran mútuament informats sobre tots aquells esdeveniments que puguin ser rellevants per a la realització del Programa d'Alumnes Sentinella.
- Que la facultat facilitarà a l'alumne la possibilitat de reclutar professors i professores que vulguin participar en el Programa d'Alumnes Sentinella.
- Que la facultat considera el Programa d'Alumnes Sentinella com a un projecte independent del Pla d'Acció Tutorial (PAT).
- Que la coordinació del PAT i la del Programa d'Alumnes Sentinella hauran de mantenir les vies de comunicació obertes per a facilitar el desenvolupament d'ambdós projectes.
- Que, igual que l'alumnat del PAT, els i les estudiants del Programa d'Alumnes Sentinella, rebran els crèdits de lliure configuració que els hi pertoquin segons les hores d'activitat acomplertes i condicionat a la presentació de la documentació pertinent.
- Que el tutor i alumne encarregats faran públiques a la facultat les conclusions obtingudes de l'estudi perquè en puguin fer ús.

Jesús Marí Gorreto Alumne Autor del Treball de Fi de Grau	Domènec Serrano Sarbosa Tutor del Treball de Fi de Grau	José Manuel Fernández-Real Lemos Degà de la Facultat de Medicina de la Universitat de Girona
Firmado por MARÍ GORRETO, JESUS (FIRMA) el día 13/10/2023 con un certificado emitido por AC DNIE 004	DOMENEC SERRANO SARBOSA / num:17.04692.2 Signat digitalment per DOMENEC SERRANO SARBOSA / num:17.04692.2 Data: 2023.10.16 11:14:10 +02'00'	José Manuel Fernández-Real Lemos - DNI 35047815R (TCAT) Firmado digitalmente por José Manuel Fernández-Real Lemos - DNI 35047815R (TCAT) Fecha: 2023.10.13 15:31:20 +02'00'

Annex 5: Informed Authorization Document for Organizations.

Document d'Autorització Informada per a les Organitzacions

Títol de l'estudi:

Seguretat i efecte d'un programa basat en estudiants sobre la prevenció de la depressió, l'ansietat i la síndrome de burnout en estudiants de medicina: Estudi del Programa d'Alumnes Sentinella.

Institució a la qual es sol·licita l'autorització:

Facultat de Medicina de la Universitat de Girona.

Investigadors responsables:

Jesús Marí Gorreto (Alumne Autor del Treball de Final de Grau). Domènec Serrano Sarbosa (Tutor del Treball de Final de Grau). Josep Garre Olmo (Tutor Metodològic).

Dades de contacte de l'investigador principal:

Correu electrònic (u1967705@campus.udg.edu) i número de telèfon (638221101).

Lloc i Àmbit de la Investigació:

Aquest projecte de recerca es desenvoluparà a l'edifici principal de la Facultat de Medicina en les fases de recollida de dades, però les reunions entre sentinelles i alumnes es podran dur a terme a on decidesquin els grups que pot esser més convenient. Per altra banda, les reunions entre investigadors i sentinelles es duran a terme a la Facultat de Medicina en horari lectiu, igual que les recollides de dades, que es faran durant les classes amb prèvia aprovació dels professors/es que les estiguin impartint.

Fonts de Finançament:

Aquest projecte no requereix finançament per part de cap entitat.

Objectius de l'Estudi:

Demostrar la seguretat, la viabilitat i l'efecte del Programa d'Alumnes Sentinelles (SSP) observant:

- Reduir els nivells de símptomes depressius, d'ansietat i d'esgotament entre els estudiants de medicina, evidenciant una disminució significativa de les puntuacions del PHQ-9, GAD-7 i SMBM entre els resultats previs i posteriors al programa com a conseqüència d'haver millorat la comunicació entre els estudiants i els Serveis de Salut Mental.

- Establir l'absència d'un augment del risc de trastorn mental per als estudiants i especialment per als alumnes que participen com a sentinelles.
- Avaluar la seva utilitat com a eina per facilitar l'accés dels estudiants de medicina als Serveis de Salut Mental tal com els perceben.
- Analitzar la seva utilitat per als estudiants de medicina com a recurs de salut mental per a la seva vida quotidiana.
- Examinar la utilitat del SSP per augmentar la detecció precoç de situacions de risc per a la salut mental entre els estudiants de medicina.
- Augmentar l'atenció dels estudiants al seu estat mental demostrant un augment significatiu de les puntuacions del MAAS entre els resultats previs i posteriors al programa.
- Verificar la necessitat d'una adaptació o millora de la formació sentinella segons el seu efecte.

Garantir que la Facultat de Medicina de la Universitat de Girona sigui un entorn favorable a la salut mental per als seus estudiants.

Avaluar l'efecte potencial de les variables següents en els nivells de símptomes depressius, d'ansietat i d'esgotament entre els estudiants de medicina, evidenciant un canvi significatiu en les puntuacions del PHQ-9, GAD-7 i SMBM:

- Sexe, gènere, orientació sexual, edat, tenir pares empleats com a treballadors sanitaris, estat de la relació, suport social autopercebut (OSSS-3), esdeveniments vitals en els darrers 6 mesos (Midtgaard, M. et al., 2008), actual curs acadèmic, finançament de la facultat de medicina, situació laboral actual, haver estudiat psiquiatria, estudiar a l'estranger, antecedents personals de trastorns mentals, antecedents de tractament psicofarmacològic o teràpia psicològica, antecedents familiars de trastorns de salut mental i ús de tòxics.

Hipòtesis:

Es planteja la hipòtesi que formant els mentors sobre com reconèixer i abordar un company amb problemes de salut mental, especialment depressió, ansietat i burnout, i explicant-los les maneres d'accedir a tots els serveis de salut mental disponibles, els efectes sobre la salut mental dels estudiants serà positiu, no només com a eina per a reduir aquesta simptomatologia sinó també per augmentar la consciència dels estudiants de medicina sobre la seva salut mental.

Procediment:

Durant el procés d'aquest estudi es recolliran les següents dades: Sexe, gènere, orientació sexual, edat, tenir pares empleats com a treballadors sanitaris, estat relacional, suport social autopercebut, esdeveniments vitals en els darrers 6 mesos, curs acadèmic actual, finançament dels estudis de medicina, ocupació actual estat, haver estudiat psiquiatria, estudiar a fora del lloc de residència habitual, antecedents personals de trastorns mentals, antecedents de tractament psicofarmacològic o teràpia psicològica, antecedents familiars de trastorns de salut mental, ús de substàncies, valoració de la capacitat d'introspecció, símptomes de depressió, ansietat i burnout, utilitat percebuda del Programa d'Alumnes Sentinella i relació amb el sentinella assignat i amb els serveis d'atenció a la salut mental.

Les variables basals es recolliran abans que comenci el programa, un cop s'hagi explicat el projecte a tots els participants i aquests hagin donat el seu consentiment per escrit per participar en l'estudi. Després d'omplir l'enquesta que servirà per recollir totes les variables necessàries, l'alumnat serà assignat a un alumne sentinella que els tutoritzarà fins al final del estudi. Durant el període entre la recollida de dades pre-inici del programa i post-programa, l'alumnat tindrà un mínim de 3 reunions amb el seu sentinella que es realitzaran en el format que el grup acordi per a reunir-se. Durant les reunions, els sentinelles avaluaran l'estat dels membres del seu grup d'acord amb la formació prèviament rebuda i els estudiants podran compartir les seves inquietuds en qualsevol tema en què creguin que el sentinella els pot ajudar (dubtes acadèmics, tràmits burocràtics i especialment, qualsevol dubte sobre la seva salut mental i els serveis de què disposen). En la seva última reunió, els estudiants sentinella lliuraran als membres del seu grup l'enquesta per recollir dades posteriors al programa, posant fi a la fase d'intervenció de l'estudi.

Els sentinelles, en canvi, faran alguns passos de manera diferent. L'investigador principal oferirà als estudiants de medicina de la Universitat de Girona que estiguin matriculats entre el segon i el cinquè curs, ambdós inclosos, la possibilitat de participar voluntàriament com a sentinelles en el programa. Un cop un mínim de 8 alumnes l'any hagin manifestat la seva voluntat d'involucrar-se com a sentinelles, participaran en una formació intensiva realitzada per especialistes en salut mental de la Fundació Galatea que consistirà en adquirir habilitats per reconèixer els principals problemes de salut mental que afecten la salut mental dels alumnes (depressió, ansietat i burnout), entre d'altres, aprendre habilitats amb consells mínims i estratègies de primer contacte, així com

conèixer els diferents recursos disponibles i com accedir-hi. Abans d'iniciar la formació, els sentinelles signaran un acord de confidencialitat i completaran la mateixa enquesta que la resta d'estudiants de medicina però identificant-se com a sentinelles per tal de poder comptabilitzar aquesta variable potencialment confusa i controlar que els coneixements adquirits durant la formació no esbiaixin les seves respostes.

D'altra banda, un cop recopilada aquesta informació basal, l'investigador col·laborador encarregat de la tutorització de l'investigador principal, com a psiquiatre, avaluarà els resultats per assegurar-se que no hi ha risc major per a la salut mental dels sentinelles. En cas de detectar-se alguna situació de risc entre algun dels sentinelles, es farà una avaluació individualitzada del subgrup de sentinelles per part del mateix psiquiatre per avaluar la potencialitat d'aquest risc detectat així com la persona en risc.

A més, cada estudiant sentinella tutoritzarà un grup d'aproximadament 10 a 15 alumnes del curs següent i alhora, per aquest mètode, cada sentinella pertanyirà a un grup d'alumnes tutoritzats per un altre sentinella 1 any més gran. Seguint aquesta estructura, tots els estudiants de medicina entre el primer i el quart curs estaran coberts per un sentinella. Per tal de cobrir els estudiants de cinquè de medicina, es va decidir que s'haurien d'incorporar 8 estudiants addicionals de cinquè curs al grup sentinella. D'aquesta manera, cinquè disposaria d'un grup de 8 sentinelles com a mínim que tutoritzaran els alumnes de quart i un altre grup de 8 sentinelles mínims que tutoritzaran la resta d'alumnes de cinquè, inclosos els sentinelles de cinquè.

Addicionalment, tot el professorat de la facultat serà informat del desenvolupament del projecte a través del coordinador d'estudis i del Consell d'Estudis, òrgan de govern que inclou els coordinadors de cada assignatura així com els representants dels estudiants de cada curs. Mitjançant aquesta via burocràtica, es seleccionaran dos professors de cada curs per atendre els estudiants sentinella i els investigadors principals en cas que sorgeixi algun problema important que requereixi la presència d'una autoritat administrativa, però, cal destacar que aquests professors no estaran formats ni autoritzats per impartir consell relacionat amb la salut mental per tal d'assegurar l'absència de biaix en el moment d'avaluar l'efecte del Programa d'Alumnes Sentinella i hauran de signar un acord de confidencialitat en cas que entrin en contacte amb qualsevol informació personal d'algun alumne que els hagi consultat.

D'altra banda, les dades es recolliran amb una diferència de 6 mesos entre les pre-programa i les post-programa. Cada període de recollida de dades tindrà una durada de 5

dies i es realitzarà temporalment en períodes de temps similars, amb la mateixa distància de les vacances i els exàmens, per tal de controlar aquests dos possibles factors de confusió. En cada període de temps de recollida de dades, els estudiants de medicina, en una reunió amb els seus altres companys i sentinella, ompliran individualment un formulari creat amb la plataforma "*Lime-Survey*" sol·licitant totes les variables necessàries. Aquest formulari s'associarà a una adreça de correu electrònic institucional per garantir la protecció de dades i es distribuirà als estudiants mitjançant un enllaç per evitar haver de necessitar el contacte personal de cada alumne, en cas que els estudiants no disposin d'un dispositiu capaç d'accedir a l'enllaç, la facultat de medicina els facilitarà un dispositiu per omplir l'enquesta.

Un cop finalitzada la recollida de dades post-programa, s'iniciaran les anàlisis estadístiques per tal de valorar els objectius i les hipòtesis anteriors. Un cop estiguin disponibles els resultats preliminars, s'exposaran als participants i a qualsevol membre dels col·lectius implicats, especialment membres de la Universitat de Girona, Fundació Galatea i CEMCAT. A més, totes les dades seran eliminadas permanentment al cap de dos anys després d'haver iniciat la intervenció. La finalitat de la recollida de dades serà poder probar la hipótesis abans esmentada i complir amb els objectius que s'han plantejat anteriorment, remarcant que no s'utilitzaran per altres motius que no siguin aquests.

Participació:

La participació dels estudiants de medicina en aquest projecte serà totalment voluntària i hauran de signar un consentiment informat per a poder participar en el projecte a més d'esser alumnes matriculats en el Grau de Medicina. Per un altre costat, els sentinelles, professors i investigadors hauran de signar un document de confidencialitat per a garantir els drets dels participants.

També destacar que, si un estudiant decideix participar, pot canviar de parer o deixar l'estudi en qualsevol moment sense que per això es vegi afectat de cap manera. És voluntat de l'investigador principal remarcar que qualsevol estudiant que participi en l'estudi, sigui sentinella o no, tindrà el dret total a abandonar l'estudi en qualsevol moment si així ho desitja, l'únic procediment requerit serà per deixar d'esser sentinelles per la qual cosa s'haurà d'informar l'investigador principal de la seva absència per a poder reassignar els alumnes que queden sense sentinella o per introduir un nou sentinella. En cas que un estudiant manifesti la seva voluntat de retirar-se de l'estudi, l'estudiant tindrà dret a que les seves dades s'eliminin de la base de dades, de manera que per fer-ho, l'estudiant es

comunicarà amb l'investigador principal i es reunirà amb ell perquè l'estudiant identifiqui les seves dades amb la supervisió de l'investigador i s'eliminaran definitivament. D'altra banda, totes les dades s'eliminaran definitivament al cap de 2 anys des de l'inici de la intervenció.

Riscos i Incomoditats:

Durant els processos de recollida de dades, es faran preguntes sobre qüestions de salut mental personal i familiar que poden despertar records o emocions que poden resultar incòmodes per a l'estudiant que respon a la prova. A més, durant el període d'intervenció, els sentinelles assessoraran els alumnes sobre què significa tenir una bona salut mental i això també podria donar lloc a situacions incòmodes, però també és aquest efecte el que busquem, ja que adonar-se d'una condició poc saludable ajudarà a aquesta persona a dirigir millor els seus esforços per tractar l'origen del seu malestar, passant d'una situació que es podria considerar moderadament incòmoda a una condició que pot ser potencialment molt beneficiosa per a l'estudiant.

No obstant això, una qüestió que preocupa als actuals investigadors és la possibilitat d'observar un impacte negatiu d'aquest programa en els estudiants sentinella ja que es veuran exposats a problemes d'altres persones i, sense tenir-lo estrictament, això pot induir un sentiment de responsabilitat que podria augmentar els seus nivells d'estrès, empitjorant una situació que, com s'ha demostrat, ja de base augmenta la seva vulnerabilitat. Per tal de minimitzar o fins i tot evitar aquesta situació, els investigadors indicaran clarament les responsabilitats dels sentinelles envers els estudiants assignats en la seva formació, així com en el consentiment escrit i l'acord de confidencialitat, expressant molt clarament que la seva feina es limita a informar sobre quins serveis de salut hi han a disposició dels estudiants, com accedir-hi i les tècniques de reconeixement dels trastorns de salut mental i l'abordatge primari que s'ensenya en la seva formació. En cap cas els sentinelles han d'intentar tractar o realitzar cap tècnica no ensenyada, ja que la seva feina no és tractar l'alumnat sinó fer d'enllaç entre l'alumnat i els serveis de salut mental i acompanyar-los en el procés de curació amb ajuda professional. A més, es presentaran sentinelles al professorat que s'encarregaran de comunicar qualsevol problema que es plantegi durant la intervenció i es mantindran reunions periòdiques amb els investigadors si hi hagués algun problema metodològic durant l'estudi. Per últim, a les reunions entre els sentinelles i l'investigador principal assistirà el tutor d'aquest treball i

psiquiatra per a assegurar i avaluar que els sentinelles no entren en una situació de risc per la seva salut mental.

Finalment, es reconeix la probabilitat, encara que sigui molt baixa de la pèrdua d'integritat de les dades per factors externs a la investigació, és per això que els protocols de recollida de dades són molt estrictes quant a qui i com es pot accedir a les dades. Només tres persones hi tindran accés, l'investigador principal, el tutor del treball i la persona encarregada de revisar l'anàlisi de dades. A més, si es produeix alguna complicació durant tota la durada de l'estudi, els investigadors tindran la plena responsabilitat de derivar aquesta persona necessitada als serveis sanitaris adequats per tal de procurar el benestar del subjecte. Per altra banda, en la improbable situació que es trenqui algun dels documents de confidencialitat, la persona que el trenqui, ja sigui sentinella, professor o investigador, serà plenament responsable de les conseqüències que se'n derivin i haurà de respondre pels seus actes davant l'acció legal que la persona afectada escollesqui.

Beneficis:

En cas de provar-se l'eficàcia i seguretat del Programa d'Alumnes Sentinella, es tendria a l'abast de qualsevol institució universitaria una heina per a poder guarir als seus estudiants de trastorns de salut mental i evitar així el seu desenvolupament amb les comorbiditats que això suposaria per a la persona. A més, donat que la intervenció es realitza a nivell universitari, si aconseguim que els estudiants siguin més conscients del seu estat de salut mental es previndrà que els futurs residents i facultatius patesquin aquest tipus de problemes quan s'enfrontin als estressors característics de cada etapa formativa/laboral de la Medicina. A nivell més individual, si els ponts s'estableixen eficientment amb els serveis d'atenció a la salut mental, es podria aconseguir que persones que en un principi no sabien on acudir per a demanar ajuden, ara sàpiguen exactament on anar i que a més ho puguin fer amb la companyia d'un altre estudiant que té les eines per a fer aquest acompanyament sense deixar la responsabilitat de tot el procés en la persona que està patint.

Per altra banda, una investigació com aquesta sentarà un precedent que demostrarà la necessitat de considerar la opinió dels estudiants en les decisions que es prenguin a nivell institucional en aquest tema i en tots aquells que el puguin influenciar, a més d'incentivar a les universitats a establir programes en les seves respectives facultats de Medicina per a poder guarir dels seus estudiants amb mètodes que s'han demostrat eficaços i segurs i no amb intervencions comunitàries no avaluades. A més, amd tota la informació que es

recollirà en aquest estudi els investigadors s'assegureran que els resultats no estiguin esbiaixats per possibles variables de confusió.

Protecció de Dades:

Aquest estudi es realitzarà d'acord amb el Reglament (UE) 2016/679 del Parlament Europeu i del Consell, de 27 d'abril de 2016, relatiu a la protecció de les persones físiques pel que fa al tractament de dades personals i a la lliure circulació d'aquestes dades. , Llei Orgànica 3/2018, de 5 de desembre, de Protecció de Dades de Caràcter Personal i Garantia dels Drets Digitals i Llei Orgànica 7/2021, de 26 de maig, de protecció de dades de caràcter personal tractades amb finalitats de prevenció, detecció, investigació i persecució de delictes penals i execució de sancions penals.

Per tal de complir amb les lleis esmentades anteriorment, les dades seran recollides i curades amb la màxima cura que es puguin donar i només s'utilitzaran per assolir els objectius esmentats a l'apartat "Propòsit de l'Estudi". Per començar, només s'han seleccionat escrupolosament les variables essencials per ser recollides pel seu interès per respondre la pregunta de recerca i/o pel seu impacte potencial de confusió rellevant i, per tant, per controlar aquests possibles factors de confusió. Aquestes dades es recolliran mitjançant una enquesta en línia amb l'eina "*Lime-Survey*" que s'enllaçarà a un compte institucional universitari (u1967705@campus.udg.edu) al qual només tindrà accés l'investigador principal. *Lime-Survey* ha estat escollida com a plataforma en línia per fer aquesta enquesta per recomanacions directes de la Delegació de Protecció de Dades de la Universitat de Girona. Un cop l'enquesta estigui preparada, s'enviarà als sentinelles i als estudiants mitjançant un enllaç que només serà presentat per investigadors o sentinelles sense que ningú més tingui accés a aquest enllaç autogenerat. Amb aquest mecanisme, els investigadors evitaran haver de demanar directament dades de contacte a qualsevol estudiant, per tant, eludir la recollida d'informació personal innecessària. A mesura que els estudiants inicien l'enquesta, la primera pregunta serà si accepten el consentiment escrit que es penjarà a la mateixa pàgina del formulari. Per continuar, es demanarà a cada estudiant que creï un codi personal únic i intransferible per pseudonimitzar el seu consentiment escrit així com les seves dades personals.

Aquest codi estarà constituït per números i lletres basats en la següent informació personal només reconeixible pel propi estudiant:

- Números a la tercera, cinquena i setena posició del codi personal universitari.

- Lletra inicial del nom dels dos pares biològics, si no hi ha pares biològics, s'utilitzen inicials dels pares adoptius o dels tutors legals.
- Darrera lletra del DNI, si no hi ha DNI, utilitzeu l'última lletra del NIE, si no hi ha NIE, utilitzeu la primera lletra que apareix al número del passaport i si no hi ha lletres al número del passaport, utilitzeu la lletra P.

Mitjançant aquest procés, les dades dels estudiants seran inidentificables per l'investigador principal però, al mateix temps, l'investigador podrà fer un seguiment de la participació i la resposta dels individus a través del temps. Un cop creat aquest codi, els estudiants hauran de respondre l'enquesta completa i, en acabar, les respostes s'emmagatzemaran automàticament a la plataforma de Lime-Survey perquè una vegada es tenguin totes les dades es puguin enmagatzemar en un servidor segur de la Universitat de Girona pertanyent al tutor d'aquest treball. A l'enquesta posterior al programa, els estudiants hauran d'introduir de nou el seu codi personal abans de respondre qualsevol altra pregunta i per assegurar-se que cada estudiant introdueix el codi correcte, les instruccions estaran a la mateixa pàgina que la pregunta del codi. Un cop finalitzat el període de recollida de dades, la base de dades emmagatzemada al servidor institucional es carregarà a l'eina estadística adequada sense el codi de pseudonimització que garanteixi en aquest moment que les dades queden totalment anònimes al programa d'anàlisi estadística. A més, no es compartiran aquestes dades durant el procés d'anàlisi i només s'hi podrà accedir a través del servidor del tutor del treball vinculat a la Universitat de Girona. Després d'haver examinat totes les dades, un estadístic revisarà l'avaluació estadística per assegurar-se que tots els càlculs són adequats i correctes. Aquest estadístic haurà signat l'acord de confidencialitat com tots els altres investigadors implicats en l'estudi donant accés a les dades brutes d'aquest estudi només a dos individus que, gràcies al procés de pseudònim descrit, no seran de cap manera relacionables amb un estudiant en concret.

A més, tal com s'explica a l'apartat "Procediment", després que els sentinelles hagin respost l'enquesta, aquestes dades seran analitzades pel psiquiatre i tutor del TFG per tal d'assegurar que cap dels sentinelles corre un risc imminent de psicopatologia greu. Durant aquest procés, les dades obtingudes seran aleatòries i separades del codi de pseudonimització per tal de fer-les anònimes per al psiquiatre. Un cop finalitzada aquesta avaluació, si algun dels subjectes sorgeix alguna sospita de trastorn mental, el psiquiatra avaluarà individualment el subgrup de subjectes al qual pertany aquesta persona en risc

(per exemple, si el subjecte és una persona de quart curs, tots els sentinelles del curs seran avaluats). A mesura que conclogui aquest tràmit, el psiquiatre decidirà si les persones entrevistades són aptes per continuar en el projecte. Aquest camí potencial apareixerà al document de consentiment escrit. En el cas que una persona sigui valorada com a no apta, les seves dades s'eliminaran seguint el mateix procés que es seguiria si volgués abandonar l'estudi.

A més, un cop extretes les conclusions de les dades numèriques i comparades amb les evidències presentades, els resultats preliminars es presentaran als estudiants de medicina implicats en l'estudi així com als professors i institucions implicades, com la Facultat de Medicina de la Universitat de Girona que poder presentar aquestes conclusions en diferents activitats amb el permís previ dels investigadors principals. Aquestes presentacions només utilitzaran dades tractades i resultats de grup, no es presentaran respostes singulars, per la qual cosa no afectaran a cap estudiant en particular, a més, els estudiants acceptaran implícitament que les seves dades s'analitzin estadísticament per a una posterior presentació i recerca. Un cop finalitzades les presentacions, es reuniran tots els resultats i conclusions obtingudes per construir un article publicable per compartir les nostres troballes amb les comunitats científiques interessades i permetre que aquest projecte s'amplií a altres universitats, especialment a les relacionades amb el CEMCAT, si les dades n'evidencian l'efecte. i seguretat.

Finalment, amb la finalitat de garantir els drets ARSLOP dels participants (accés, rectificació, supressió, limitació del tractament, oposició i portabilitat de les dades), l'investigador principal posarà el seu contacte directe a disposició dels participants perquè manifestin la seva voluntat d'exercir aquests drets. En cas que un estudiant manifesti la seva voluntat de retirar-se de l'estudi o exercir els drets esmentats anteriorment, l'estudiant haurà de comunicar-se amb l'investigador principal a través de la seva adreça de correu electrònic institucional (u1967705@campus.udg.edu) i reunir-se amb ell per a l'estudiant. identificar les seves dades amb la supervisió de l'investigador i fer-les eliminar definitivament, rectificar, limitar o reunir en l'exercici dels seus drets ARSLOP o dret de retirada. D'altra banda, totes les dades s'eliminaran definitivament al cap de dos anys des de la finalització de la intervenció eliminant qualsevol registre de les dades en brut recollides del compte institucional utilitzat. Així mateix, com que l'investigador principal no pertanyirà a la Universitat de Girona després d'aquest període de temps, el compte de

correu electrònic i totes les referències a consultes personals realitzades s'esborraran permanentment a mesura que es tancarà el compte.

Signatura:

Jo afirmo que se m'ha explicat la finalitat i objectius de la present investigació, els procediments utilitzats en l'estudi, els possibles riscos i incomoditats, així com els drets i beneficis potencials que els participants puguin experimentar. Les alternatives possibles a la participació en l'estudi també han estat discutides, com la possibilitat de retirar l'autorització si es creu que hi ha raons per a realitzar dita acció. M'han respost també a les diferents preguntes que he formulat. Declaro que he llegit aquest consentiment informat i que la signatura a continuació expressa el meu desig d'autoritzar la realització d'aquest estudi.

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La persona representant de l'organització Data DNI

El sotasignat declara haver explicat la finalitat de la investigació, els procediments utilitzats en l'estudi, identificant aquells que tenen finalitat merament d'investigació, els possibles riscos i incomoditats que puguin originar-se i que ha respost el millor que ha pogut a les preguntes que se li han formulat respecte a l'estudi.

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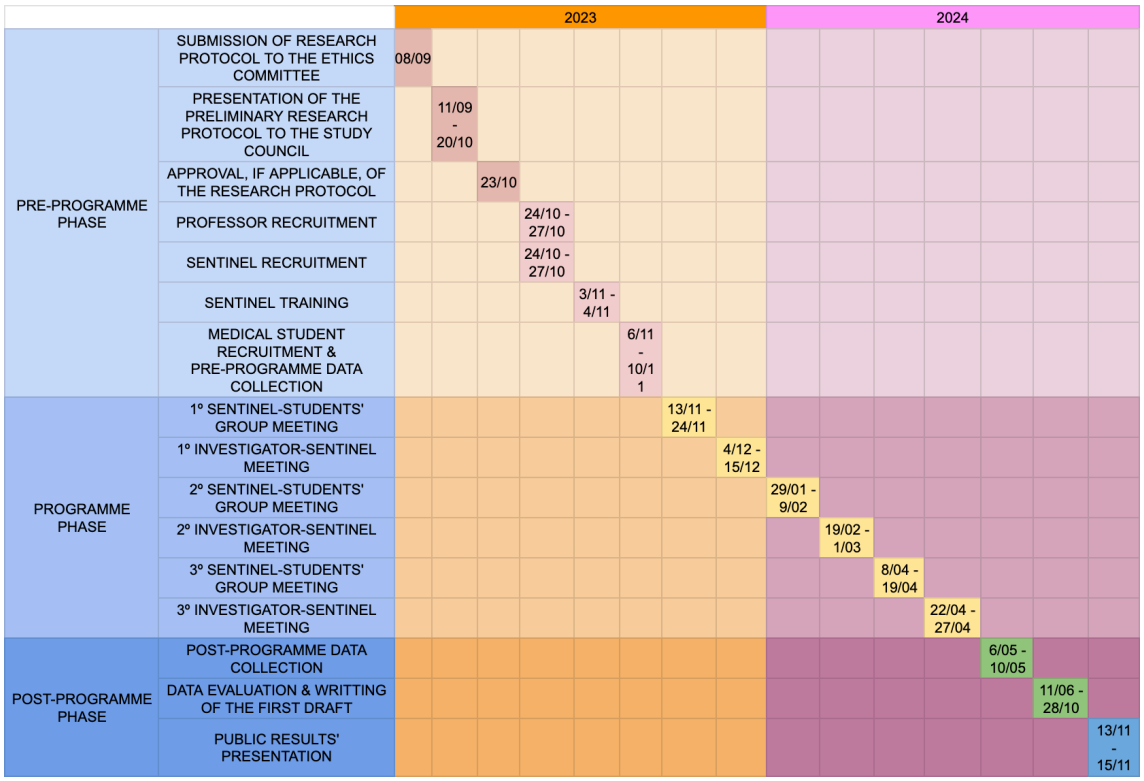
L'investigador principal Data DNI

Annex 6: Gantt Diagram for the Planification of the Sentinel Student Programme Study.



Annex 7: Oslo Social Support Scale-3.

1: ¿Cuántas personas son tan cercanas a ti que puedes contar con ellas si tienes grandes problemas personales?

1 ‘ninguna’

2 ‘1–2’

3 ‘3–5’

4 ‘5+’

2: ¿Cuánto interés y preocupación muestra la gente por lo que haces?

1 ‘ninguno’

2 ‘poco’

3 ‘incierto’

4 ‘alguno’

5 ‘mucho’

3: ¿Qué tan fácil es obtener ayuda práctica de los vecinos si la necesita?

1 ‘muy difícil’

2 ‘difícil’

3 ‘posible’

4 ‘fácil’

5 ‘muy fácil’

Annex 8: Alcohol Use Disorders Identification Test-3:

1: ¿Con qué frecuencia consume alguna bebida alcohólica?

(0) nunca

(1) Una o menos veces al mes

(2) 2 a 4 veces al mes

(3) 2 o 3 veces a la semana

(4) 4 o más veces a la semana

2: ¿Cuántas consumiciones de bebidas alcohólicas suele realizar en un día de consumo normal?

(0) 1 o 2

(1) 3 o 4

(2) 5 o 6

(3) 7 a 9

(4) 10 o mas

3: ¿Con qué frecuencia toma 6 o más bebidas alcohólicas en un solo día?

(0) nunca

(1) menos de una vez al mes

(2) mensualmente

(3) semanalmente

(4) a diario o casi a diario

Annex 9: Spanish Validated Mindful Attention and Awareness Scale.

	Siempre / casi Siempre	Muy a menudo	Bastante a menudo	Rara-mente	Muy Rara-mente	Nunca / casi nunca
Podría sentir una emoción y no ser consciente de ella hasta más tarde.	1	2	3	4	5	6
Rompo o derramo cosas por descuido, por no poner atención, o por estar pensando en otra cosa.	1	2	3	4	5	6
Encuentro difícil estar centrado en lo que está pasando en el presente.	1	2	3	4	5	6
Tiendo a caminar rápido para llegar a dónde voy, sin prestar atención a lo que experimento durante el camino.	1	2	3	4	5	6
Tiendo a no darme cuenta de sensaciones de tensión física o incomodidad, hasta que realmente captan mi atención.	1	2	3	4	5	6
Me olvido del nombre de una persona tan pronto me lo dicen por primera vez.	1	2	3	4	5	6
Parece como si "funcionara en automático" sin demasiada consciencia de lo que estoy haciendo.	1	2	3	4	5	6
Hago las actividades con prisas, sin estar realmente atento a ellas.	1	2	3	4	5	6
Me concentro tanto en la meta que deseo alcanzar, que pierdo contacto con lo que estoy haciendo ahora para alcanzarla.	1	2	3	4	5	6
Hago trabajos o tareas automáticamente, sin darme cuenta de lo que estoy haciendo.	1	2	3	4	5	6
Me encuentro a mí mismo escuchando a alguien por una oreja y haciendo otra cosa al mismo tiempo.	1	2	3	4	5	6
Voy "en piloto automático" y luego me pregunto por qué fui allí.	1	2	3	4	5	6
Me encuentro absorto acerca del futuro o el pasado.	1	2	3	4	5	6
Me descubro haciendo cosas sin prestar atención.	1	2	3	4	5	6
Pico sin ser consciente de que estoy comiendo	1	2	3	4	5	6

Annex 10: Spanish Validated Patient Health Questionnaire - 9.

	Nunca	Varios días	Más de la mitad de los días	Todos o casi todos los días
Tener poco interés o disfrutar poco haciendo las cosas.	0	1	2	3
Sentirse desanimado/a, deprimido/a o sin esperanza.	0	1	2	3
Tener problemas para dormir o para mantenerse dormido, o dormir demasiado.	0	1	2	3
Sentirse cansado/a o tener poca energía.	0	1	2	3
Tener poco apetito o comer en exceso.	0	1	2	3
Sentirse mal consigo mismo/a-o sentirse fracasado/a, o pensar que se ha decepcionado a sí mismo o a los que le rodean	0	1	2	3
Tener dificultades para concentrarse en cosas tales como leer el periódico o ver la televisión	0	1	2	3
Moverse o hablar tan lentamente que los demás lo han notado. O bien al contrario, estar tan agitado/a o inquieto/a que se mueve mucho más de lo habitual	0	1	2	3
Tener pensamientos sobre estar muerto/a o sobre hacerse daño a sí mismo de alguna manera	0	1	2	3

Annex 11: Spanish validated version of the General Anxiety Disorder-7 Scale.

Señale con qué frecuencia ha sufrido los siguientes problemas en los últimos 15 días:	Nunca	Varios días	Más de la mitad de los días	Todos o casi todos los días
Se ha sentido nervioso, ansioso o muy alterado	0	1	2	3
No ha podido dejar de preocuparse	0	1	2	3
Se ha preocupado excesivamente por diferentes cosas	0	1	2	3
Ha tenido dificultad para relajarse	0	1	2	3
Se ha sentido tan intranquilo que no podía estarse quieto	0	1	2	3
Se ha irritado o enfadado con facilidad	0	1	2	3
Ha sentido miedo, como si fuera a suceder algo terrible	0	1	2	3

Annex 12: Spanish version of the Shirom-Melamed Burnout Measure:

	Nunca/ casi nunca	Muy rara-mente	Rara-mente	A me-nudo	Bas-tante a me-nudo	Muy a menudo	Siempre / casi siempre
Me siento cansado.	1	2	3	4	5	6	7
No tengo energía para ir a clase por las mañanas.	1	2	3	4	5	6	7
Me siento físicamente agotado.	1	2	3	4	5	6	7
Me siento harto.	1	2	3	4	5	6	7
Siento que mis “pilas” están “agotadas”.	1	2	3	4	5	6	7
Me siento quemado.	1	2	3	4	5	6	7
Pienso con lentitud.	1	2	3	4	5	6	7
Tengo dificultades para concentrarme.	1	2	3	4	5	6	7
Siento que no pienso con claridad.	1	2	3	4	5	6	7
Siento que no estoy concentrado en mis pensamientos.	1	2	3	4	5	6	7
Tengo dificultades para pensar en cosas complejas.	1	2	3	4	5	6	7
Siento que soy incapaz de ser sensible a las necesidades de los demás.	1	2	3	4	5	6	7
Siento que soy incapaz de interesarme emocionalmente por los demás.	1	2	3	4	5	6	7
Siento que soy incapaz de conectar emocionalmente con los demás.	1	2	3	4	5	6	7

Annex 13: Informed Consent for Participants.

FULL DE CONSENTIMENT INFORMAT

Títol de l'estudi: Seguretat i Efecte d'un programa basat en estudiants sobre la prevenció de la depressió, l'ansietat i la síndrome de burnout en estudiants de medicina: Estudi del Programa d'Alumnes Sentinella.

Institució i/o departament responsable: Facultat de Medicina de la Universitat de Girona en el marc del Projecte de Final de Grau de Medicina de l'investigador principal.

Població d'estudi: Estudiants del Grau de Medicina matriculats a la Universitat de Girona entre els cursos de primer i cinquè.

Investigador/a responsable: Jesús Marí Gorreto
Dades de contacte de l'investigador/a: Correu electrònic de l'investigador (u1967705@campus.udg.edu).

El present informe té com a objectiu primordial proporcionar-vos tota la informació necessària perquè pugueu decidir lliurement i voluntàriament si voleu participar en aquest estudi. Per això, heu de llegir atentament la següent informació i preguntar qualsevol dubte al respecte.

PROPÒSIT DE L'ESTUDI

Les dades que s'han anat proporcionant per diferent estudis en els darrers anys demostren prevalences de trastorns mentals molt elevades a Espanya entre els joves, especialment entre els universitaris i més concretament en els estudis de Medicina. Aquests esdeveniments s'han relacionat amb múltiples factors dels quals es destaquen l'estrés generat per els estudis i la falta de coneixement dels estudiants de Medicina dels serveis als quals poden acudir en cas de patir algun problema de l'esfera psicològica. Amb aquesta base, s'estableix com a propòsit d'aquesta investigació proporcionar als estudiants de Medicina un programa segur i eficaç que pugui pal·liar aquesta situació mentre es prenen mesures institucionals per a solucionar la gran càrrega que suposen els estudis de Medicina. És objectiu d'aquesta investigació demostrar que mitjançant un programa de prevenció fet per i per a estudiants es pot arribar a aconseguir augmentar l'estat de benestar dels estudiants de la Facultat de Medicina de la Universitat de Girona i que aquests comptin amb suficients recursos i informació per a poder accedir als serveis

d'atenció a la salut mental que tenen disponibles, a la vegada que es farà de la Facultat un actiu en salut. Per aquesta raó, els investigadors es marquen els següents objectius:

- Demostrar la seguretat, la viabilitat i l'efecte del Programa d'Alumnes Sentinel.
- Garantir que la Facultat de Medicina de la Universitat de Girona sigui un entorn favorable a la salut mental per als seus estudiants.
- Avaluar l'efecte potencial de les variables següents en els nivells de símptomes depressius, d'ansietat i d'esgotament entre els estudiants de medicina: Sexe, gènere, orientació sexual, edat, tenir pares ocupats com a treballadors sanitaris, estat de relació, suport social autopercebut (OSSS-3).), fets vitals en els darrers 6 mesos (Midtgaard et al., 2008), curs acadèmic en curs, finançament de la facultat de medicina, situació laboral actual, haver estudiat psiquiatria, estudiar a l'estranger, antecedents personals de trastorns mentals, antecedents de tractament psicofarmacològic o psicològic. teràpia, antecedents familiars de trastorns de salut mental i ús de tòxics.

PROCEDIMENT

Durant el procés d'aquest estudi es recolliran les següents dades: Sexe, gènere, orientació sexual, edat, tenir pares empleats com a treballadors sanitaris, estat relacional, suport social autopercebut, esdeveniments vitals en els darrers 6 mesos, curs acadèmic actual, finançament dels estudis de medicina, ocupació actual estat, haver estudiat psiquiatria, estudiar a fora del lloc de residència habitual, antecedents personals de trastorns mentals, antecedents de tractament psicofarmacològic o teràpia psicològica, antecedents familiars de trastorns de salut mental, ús de substàncies, valoració de la capacitat d'introspecció, símptomes de depressió, ansietat i burnout, utilitat percebuda del Programa d'Alumnes Sentinella i relació amb el sentinella assignat i amb els serveis d'atenció a la salut mental.

Les variables basals es recolliran abans que comenci el programa, un cop s'hagi explicat el projecte a tots els participants i aquests hagin donat el seu consentiment per escrit per participar en l'estudi. Després d'omplir l'enquesta que servirà per recollir totes les variables necessàries, l'alumnat serà assignat a un alumne sentinella que els tutoritzarà fins al final de la prova. Durant el període entre la recollida de dades pre-inici del programa i post-programa, l'alumnat tindrà un mínim de 3 reunions amb el seu sentinella que es realitzaran en el format que el grup acordi per a reunir-se. Durant les reunions, els sentinelles avaluaran l'estat dels membres del seu grup d'acord amb la formació

prèviament rebuda i els estudiants podran compartir les seves inquietuds en qualsevol tema en què creguin que el sentinella els pot ajudar (dubtes acadèmics, tràmits burocràtics i especialment , qualsevol dubte sobre la seva salut mental i els serveis de què disposen). En la seva última reunió, els estudiants sentinella lliuraran als membres del seu grup l'enquesta per recollir dades posteriors a la intervenció, posant fi a la fase d'intervenció de l'estudi.

Els sentinelles, en canvi, faran alguns passos de manera diferent. L'investigador principal oferirà als estudiants de medicina de la Universitat de Girona que estiguin matriculats entre el segon i el cinquè curs, ambdós inclosos, la possibilitat de participar voluntàriament com a sentinelles en el programa. Un cop un mínim de 8 alumnes l'any hagin manifestat la seva voluntat d'involucrar-se com a sentinelles, participaran en una formació intensiva realitzada per especialistes en salut mental de la Fundació Galatea que consistirà en adquirir habilitats per reconèixer els principals problemes de salut mental que afecten la salut mental dels alumnes (depressió, ansietat i burnout), entre d'altres, aprendre habilitats amb consells mínims i estratègies de primer contacte, així com conèixer els diferents recursos disponibles i com accedir-hi. Abans d'iniciar la formació, els sentinelles signaran un acord de confidencialitat i completaran la mateixa enquesta que la resta d'estudiants de medicina però identificantse com a sentinelles per tal de poder comptabilitzar aquesta variable potencialment confusa i controlar que els coneixements adquirits durant la formació no esbiaixin les seves respostes.

D'altra banda, un cop recopilada aquesta informació basal, l'investigador col·laborador encarregat de la tutorització de l'investigador principal, com a psiquiatre, avaluarà els resultats per assegurar-se que no hi ha risc major per a la salut mental dels sentinelles. En cas de detectar-se alguna situació de risc entre algun dels sentinelles, es farà una avaluació individualitzada del subgrup de sentinelles per part del mateix psiquiatre per avaluar la potencialitat d'aquest risc detectat així com la persona en risc.

A més, cada estudiant sentinella tutoritzarà un grup d'aproximadament 10 a 15 alumnes del curs següent i alhora, per aquest mètode, cada sentinella pertanyirà a un grup d'alumnes tutoritzats per un altre sentinella 1 any més gran. Seguint aquesta estructura, tots els estudiants de medicina entre el primer i el quart curs estaran coberts per un sentinella. Per tal de cobrir els estudiants de cinquè de medicina, es va decidir que s'haurien d'incorporar 8 estudiants addicionals de cinquè curs al grup sentinella. D'aquesta

manera, cinquè disposaria d'un grup de 8 sentinelles com a mínim que tutoritzaran els alumnes de quart i un altre grup de 8 sentinelles mínims que tutoritzaran la resta d'alumnes de cinquè, inclosos els sentinelles de cinquè.

Addicionalment, tot el professorat de la facultat serà informat del desenvolupament del projecte a través del coordinador d'estudis i del Consell d'Estudis, òrgan de govern que inclou els coordinadors de cada assignatura així com els representants dels estudiants de cada curs. Mitjançant aquesta via burocràtica, es seleccionaran dos professors de cada curs per atendre els estudiants sentinella i els investigadors principals en cas que sorgeixi algun problema important que requereixi la presència d'una autoritat administrativa, però, cal destacar que aquests professors no estaran formats ni autoritzats per impartir consell relacionat amb la salut mental per tal d'assegurar l'absència de biaix en el moment d'avaluar l'eficàcia del Programa d'Estudiants Sentinel i hauran de signar un acord de confidencialitat en cas que entren en contacte amb qualsevol informació personal d'algun alumne que els hagi consultat.

D'altra banda, les dades es recolliran amb una diferència de 6 mesos entre les pre-intervencions i les post-intervenció. Cada període de recollida de dades tindrà una durada de 5 dies i es realitzarà temporalment en períodes de temps similars, que a la mateixa distància de vacances i exàmens, per tal de controlar aquests dos possibles factors de confusió. En cada període de temps de recollida de dades, els estudiants de medicina, en una reunió amb els seus altres companys i sentinella, ompliran individualment un formulari creat amb la plataforma “Lime-Survey” sol·licitant totes les variables necessàries. Aquest formulari s'associarà a una adreça de correu electrònic institucional per garantir la protecció de dades i es distribuirà als estudiants mitjançant un enllaç per evitar haver de necessitar el contacte personal de cada alumne, en cas que els estudiants no disposin d'un dispositiu capaç d’accedir a l’enllaç, la facultat de medicina els facilitarà un dispositiu per omplir l'enquesta.

Un cop finalitzada la recollida de dades post-intervenció, s'iniciaran les anàlisis estadístiques per tal de valorar els objectius i les hipòtesis anteriors. Un cop estiguin disponibles els resultats preliminars, s'exposaran als participants i a qualsevol membre dels col·lectius implicats, especialment membres de la Universitat de Girona, Fundació Galatea i CEMCAT. A més, totes les dades seran eliminadas permanentment al cap de dos anys després d’haver iniciat la intervenció.

RISCOS I INCOMODITATS

Durant els processos de recollida de dades, es faran preguntes sobre qüestions de salut mental personal i familiar que poden despertar records o emocions que poden resultar incòmodes per a l'estudiant que respon a la prova. A més, durant el període d'intervenció, els sentinelles assessoraran els alumnes sobre què significa tenir una bona salut mental i això també podria donar lloc a situacions incòmodes, però també és aquest efecte el que busquem, ja que adonar-se d'una condició poc saludable ajudarà a aquesta persona a dirigir millor els seus esforços per tractar l'origen del seu malestar, passant d'una situació que es podria considerar moderadament incòmoda a una condició que pot ser potencialment molt beneficiosa per a l'estudiant.

No obstant això, una qüestió que preocupa als actuals investigadors és la possibilitat d'observar un impacte negatiu d'aquest programa en els estudiants sentinella ja que es veuran exposats a problemes d'altres persones i, sense tenir-lo estrictament, això pot induir un sentiment de responsabilitat que podria augmentar els seus nivells d'estrès, empitjorant una situació que, com s'ha demostrat, ja de base augmenta la seva vulnerabilitat. Per tal de minimitzar o fins i tot evitar aquesta situació, els investigadors indicaran clarament les responsabilitats dels sentinelles envers els estudiants assignats en la seva formació, així com en el consentiment escrit i l'acord de confidencialitat, expressant molt clarament que la seva feina es limita a informar sobre quins serveis de salut hi han a disposició dels estudiants, com accedir-hi i les tècniques de reconeixement dels trastorns de salut mental i l'abordatge primari que s'ensenya en la seva formació. En cap cas els sentinelles han d'intentar tractar o realitzar cap tècnica no ensenyada, ja que la seva feina no és tractar l'alumnat sinó fer d'enllaç entre l'alumnat i els serveis de salut mental i acompanyar-los en el procés de curació amb ajuda professional. A més, es presentaran sentinelles al professorat que s'encarregaran de comunicar qualsevol problema que es plantegi durant la intervenció i es mantindran reunions periòdiques amb els investigadors si hi hagués algun problema metodològic durant l'estudi. Per últim, a les reunions entre els sentinelles i l'investigador principal assistirà el tutor d'aquest treball i psiquiatra per a assegurar i avaluar que els sentinelles no entren en una situació de risc per la seva salut mental.

Finalment, es reconeix la probabilitat, encara que sigui molt baixa de la pèrdua d'integritat de les dades per factors externs a la investigació, és per això que els protocols de recollida

de dades són molt estrictes quant a qui i com es pot accedir a les dades. Només tres persones hi tindran accés, l'investigador principal, el tutor del treball i la persona encarregada de revisar l'anàlisi de dades. A més, si es produeix alguna complicació durant tota la durada de l'estudi, els investigadors tindran la plena responsabilitat de derivar aquesta persona necessitada als serveis sanitaris adequats per tal de procurar el benestar del subjecte. Per altra banda, en la improbable situació que es trenqui algun dels documents de confidencialitat, la persona que el trenqui, ja sigui sentinella, professor o investigador, serà plenament responsable de les conseqüències que se'n derivin i haurà de respondre pels seus actes davant l'acció legal que la persona afectada escollesqui.

BENEFICIS

En cas de provar-se l'eficàcia i seguretat del Programa d'Alumnes Sentinella, es tendria a l'abast de qualsevol institució universitaria una heina per a poder guarir als seus estudiants de trastorns de salut mental i evitar així el seu desenvolupament amb les comorbiditats que això suposaria per a la persona. A més, donat que la intervenció es realitza a nivell universitari, si aconseguim que els estudiants siguin més conscients del seu estat de salut mental es previndrà que els futurs residents i facultatius patesquin aquest tipus de problemes quan s'enfrontin als estressors característics de cada etapa formativa/laboral de la Medicina. A nivell més individual, si els ponts s'estableixen eficientment amb els serveis d'atenció a la salut mental, es podria aconseguir que persones que en un principi no sabien on acudir per a demanar ajuden, ara sàpiguen exactament on anar i que a més ho puguin fer amb la companyia d'un altre estudiant que té les eines per a fer aquest acompanyament sense deixar la responsabilitat de tot el procés en la persona que està patint.

Per altra banda, una investigació com aquesta sentarà un precedent que demostrarà la necessitat de considerar la opinió dels estudiants en les decisions que es prenguin a nivell institucional en aquest tema i en tots aquells que el puguin influenciar, a més d'incentivar a les universitats a establir programes en les seves respectives facultats de Medicina per a poder guarir dels seus estudiants amb mètodes que s'han demostrat eficaços i segurs i no amb intervencions comunitàries no avaluades. A més, amd tota la informació que es recollirà en aquest estudi els investigadors s'assegureran que els resultats no estiguin esbiaixats per possibles variables de confusió.

CONFIDENCIALITAT

Aquest estudi es realitzarà d'acord amb el Reglament (UE) 2016/679 del Parlament Europeu i del Consell, de 27 d'abril de 2016, relatiu a la protecció de les persones físiques pel que fa al tractament de dades personals i a la lliure circulació d'aquestes dades. , Llei Orgànica 3/2018, de 5 de desembre, de Protecció de Dades de Caràcter Personal i Garantia dels Drets Digitals i Llei Orgànica 7/2021, de 26 de maig, de protecció de dades de caràcter personal tractades amb finalitats de prevenció, detecció, investigació i persecució de delictes penals i execució de sancions penals.

Per tal de complir amb les lleis esmentades anteriorment, les dades seran recollides i curades amb la màxima cura que es puguin donar i només s'utilitzaran per assolir els objectius esmentats a l'apartat "Propòsit de l'Estudi". Per començar, només s'han seleccionat escrupolosament les variables essencials per ser recollides pel seu interès per respondre la pregunta de recerca i/o pel seu impacte potencial de confusió rellevant i, per tant, per controlar aquests possibles factors de confusió. Aquestes dades es recolliran mitjançant una enquesta en línia amb l'eina "Lime-Survey" que s'enllaçarà a un compte institucional universitari (u1967705@campus.udg.edu) al qual només tindrà accés l'investigador principal. Lime-Survey ha estat escollida com a plataforma en línia per fer aquesta enquesta per recomanacions directes de la Delegació de Protecció de Dades de la Universitat de Girona. Un cop l'enquesta estigui preparada, s'enviarà als sentinelles i als estudiants mitjançant un enllaç que només serà presentat per investigadors o sentinelles sense que ningú més tingui accés a aquest enllaç autogenerat. Amb aquest mecanisme, els investigadors evitaran haver de demanar directament dades de contacte a qualsevol estudiant, per tant, eludir la recollida d'informació personal innecessària. A mesura que els estudiants inicien l'enquesta, la primera pregunta serà si accepten el consentiment escrit que es penjarà a la mateixa pàgina del formulari. Per continuar, es demanarà a cada estudiant que creï un codi personal únic i intransferible per pseudonimitzar el seu consentiment escrit així com les seves dades personals. Aquest codi estarà constituït per números i lletres basats en la següent informació personal només reconeixible pel propi estudiant:

- Números a la tercera, cinquena i setena posició del codi personal universitari.
- Lletra inicial del nom dels dos pares biològics, si no hi ha pares biològics, s'utilitzen inicials dels pares adoptius o dels tutors legals.

- Darrera lletra del DNI, si no hi ha DNI, utilitzeu l'última lletra del NIE, si no hi ha NIE, utilitzeu la primera lletra que apareix al número del passaport i si no hi ha lletres al número del passaport, utilitzeu la lletra P.

Mitjançant aquest procés, les dades dels estudiants seran inidentificables per l'investigador principal però, al mateix temps, l'investigador podrà fer un seguiment de la participació i la resposta dels individus a través del temps. Un cop creat aquest codi, els estudiants hauran de respondre l'enquesta completa i, en acabar, les respostes s'emmagatzemaran automàticament a la plataforma de Lime-Survey perquè una vegada es tenguin totes les dades es puguin enmagatzemar en un servidor segur de la Universitat de Girona pertanyent al tutor d'aquest treball. A l'enquesta posterior al programa, els estudiants hauran d'introduir de nou el seu codi personal abans de respondre qualsevol altra pregunta i per assegurar-se que cada estudiant introdueix el codi correcte, les instruccions estaran a la mateixa pàgina que la pregunta del codi. Un cop finalitzat el període de recollida de dades, la base de dades emmagatzemada al servidor institucional es carregarà a l'eina estadística adequada sense el codi de pseudonimització que garanteixi en aquest moment que les dades queden totalment anònimes al programa d'anàlisi estadística. A més, no es compartiran aquestes dades durant el procés d'anàlisi i només s'hi podrà accedir a través del servidor del tutor del treball vinculat a la Universitat de Girona. Després d'haver examinat totes les dades, un estadístic revisarà l'avaluació estadística per assegurar-se que tots els càlculs són adequats i correctes. Aquest estadístic haurà signat l'acord de confidencialitat com tots els altres investigadors implicats en l'estudi donant accés a les dades brutes d'aquest estudi només a dos individus que, gràcies al procés de pseudònim descrit, no seran de cap manera relacionables amb un estudiant en concret.

A més, tal com s'explica a l'apartat "Disseny de l'estudi", després que els sentinelles hagin respost l'enquesta, aquestes dades seran analitzades pel psiquiatre i tutor del TFG per tal d'assegurar que cap dels sentinelles corre un risc imminent de psicopatologia greu. Durant aquest procés, les dades obtingudes seran aleatòries i separades del codi de pseudonimització per tal de fer-les anònimes per al psiquiatre. Un cop finalitzada aquesta avaluació, si algun dels subjectes sorgeix alguna sospita de trastorn mental, el psiquiatra avaluarà individualment el subgrup de subjectes al qual pertany aquesta persona en risc (per exemple, si el subjecte és una persona de quart curs, tots els sentinelles del curs seran avaluats). A mesura que conclogui aquest tràmit, el psiquiatre decidirà si les persones

entrevistades són aptes per continuar en el projecte. Aquest camí potencial apareixerà al document de consentiment escrit. En el cas que una persona sigui valorada com a no apta, les seves dades s'eliminaran seguint el mateix procés que es seguiria si volgués abandonar l'estudi.

A més, un cop extretes les conclusions de les dades numèriques i comparades amb les evidències presentades, els resultats preliminars es presentaran als estudiants de medicina implicats en l'estudi així com als professors i institucions implicades, com la Facultat de Medicina de la Universitat de Girona que poder presentar aquestes conclusions en diferents activitats amb el permís previ dels investigadors principals. Aquestes presentacions només utilitzaran dades tractades i resultats de grup, no es presentaran respostes singulars, per la qual cosa no afectaran a cap estudiant en particular, a més, els estudiants acceptaran implícitament que les seves dades s'analitzin estadísticament per a una posterior presentació i recerca. Un cop finalitzades les presentacions, es reuniran tots els resultats i conclusions obtingudes per construir un article publicable per compartir les nostres troballes amb les comunitats científiques interessades i permetre que aquest projecte s'ampliï a altres universitats, especialment a les relacionades amb el CEMCAT, si les dades n'evidencian l'efecte. i seguretat.

Finalment, amb la finalitat de garantir els drets ARSLOP dels participants (accés, rectificació, supressió, limitació del tractament, oposició i portabilitat de les dades), l'investigador principal posarà el seu contacte directe a disposició dels participants perquè manifestin la seva voluntat d'exercir aquests drets. En cas que un estudiant manifesti la seva voluntat de retirar-se de l'estudi o exercir els drets esmentats anteriorment, l'estudiant haurà de comunicar-se amb l'investigador principal a través de la seva adreça de correu electrònic institucional (u1967705@campus.udg.edu) i reunir-se amb ell per a l'estudiant. identificar les seves dades amb la supervisió de l'investigador i fer-les eliminar definitivament, rectificar, limitar o reunir en l'exercici dels seus drets ARSLOP o dret de retirada. D'altra banda, totes les dades s'eliminaran definitivament al cap de dos anys des de la finalització de la intervenció eliminant qualsevol registre de les dades en brut recollides del compte institucional utilitzat. Així mateix, com que l'investigador principal no pertanyirà a la Universitat de Girona després d'aquest període de temps, el compte de correu electrònic i totes les referències a consultes personals realitzades s'esborraran permanentment a mesura que es tancarà el compte.

DRET A TENIR MÉS INFORMACIÓ SOBRE L'ESTUDI

Podeu fer qualsevol pregunta sobre l'estudi, sempre que vulgueu, al llarg del registre. L'investigador de contacte (vegeu primera pàgina) estarà disponible per poder respondre a les vostres preguntes, interessos o preocupacions sobre l'estudi. Sereu informats de qualsevol descobriment nou que es produeixi al llarg de l'estudi i que pugui afectar la vostra participació en futurs estudis. Si durant o després de l'estudi, desitgeu discutir els vostres drets com a persona que participa en una investigació, la vostra participació en l'estudi o les vostres preocupacions o bé, si us sentiu pressionats a participar-hi o continuar en aquesta investigació i en futurs registres, us animem que contacteu amb autoritats que us puguin ajudar a discutir-ho o en el cas que fos necessari representar-vos (Comitè d'Ètica i Bioseguretat en la Recerca de la Universitat de Girona).

REBUIG O ABANDONAMENT DE LA PARTICIPACIÓ

La participació en aquest estudi és voluntària. No heu de participar en l'estudi si no ho voleu. Si decidiu participar, podeu canviar de parer o deixar l'estudi en qualsevol moment sense que per això us veieu afectats de cap manera. És voluntat de l'investigador principal remarcar que qualsevol estudiant que participi en l'estudi, sigui sentinella o no, tindrà el dret total a abandonar l'estudi en qualsevol moment si així ho desitja, l'únic procediment requerit serà per deixar d'esser sentinelles per la qual cosa s'haurà d'informar l'investigador principal de la seva absència per a poder reassignar els alumnes que queden sense sentinella o per introduir un nou sentinella. En cas que un estudiant manifesti la seva voluntat de retirar-se de l'estudi, l'estudiant tindrà dret a que les seves dades s'eliminin de la base de dades, de manera que per fer-ho, l'estudiant es comunicarà amb l'investigador principal i es reunirà amb ell perquè l'estudiant identifiqui les seves dades amb la supervisió de l'investigador i s'eliminaran definitivament. D'altra banda, totes les dades s'eliminaran definitivament al cap de 2 anys des de l'inici de la intervenció.

SIGNATURA

Indicant a l'enquesta que està d'acord amb participar en aquest estudi, afirmo que se m'ha explicat la finalitat i objectius de la present investigació, els procediments utilitzats en l'estudi, els possibles riscos i incomoditats, així com els drets i beneficis potencials que en pugui experimentar. Les alternatives possibles a la participació en l'estudi també han estat discutides, com la possibilitat de retirar-me'n quan vulgui i sense haver de donar

explicacions. M'han respost també a les diferents preguntes que he formulat. Declaro que he

llegit aquest consentiment informat i que la signatura a continuació expressa el meu desig de participar voluntàriament en aquest estudi.

El sotasignat declara haver explicat la finalitat de la investigació, els procediments utilitzats en l'estudi, identificant aquells que tenen finalitat merament d'investigació, els possibles riscos i incomoditats que puguin originar-se i que ha respost el millor que ha pogut a les preguntes que se li han formulat respecte a l'estudi.

_____ _____ _____

L' investigador/a responsable de l'estudi Data DNI

Annex 14: Confidentiality Agreement for Investigators.

Document de Compromís Individual de Confidencialitat

Jo, ..., investigador/a de la Facultat de Medicina de la Universitat de Girona que participarà en l'Estudi del Programa d'Alumnes Sentinella, manifesto que:

Compliré totes les condicions del compromís de confidencialitat i utilitzaré les dades indicades a la proposta d'investigació, de conformitat amb les condicions d'ús adjuntes al compromís de confidencialitat.

a) Utilitzaré les dades únicament per a la finalitat especificada a la proposta d'investigació.
b) Custodiaré les dades i qualsevol identificador associats a aquest usuari.
c) Garantiré que els resultats de les anàlisis no es revelin o puguin revelar-se juntament amb altra informació de domini públic.
d) Reconeixeré les dades i la font a qualsevol informe o publicació de recerca i declararé que els resultats i conclusions extrets a partir de les dades utilitzades són meus i no de qualsevol altre òrgan estadístic cedent.
e) Preservaré la confidencialitat de la informació relativa a les persones, les llars i/o les organitzacions identificables que figurin en el conjunt de dades.
f) Eliminaré de manera adequada la documentació i els materials confidencials després de cada reunió o consulta i només custodiaré aquelles dades que siguin necessàries per al propòsit de l'Estudi del Programa d'Alumnes Sentinella o per a la continuïtat assistencial del consultant.
g) Destruiré el conjunt de dades cedides i qualsevol dada o variable que se'n derivi al final del període d'investigació especificat a la proposta d'investigació i signaré una declaració en la qual s'asseguri que totes les dades han estat destruïdes.
h) Informaré immediatament de qualsevol violació de les normes de confidencialitat establertes en el compromís de confidencialitat o en les condicions d'ús de les dades confidencials amb finalitats científiques.

I també em comprometo al següent:

a) No utilitzaré les dades (fitxers d'ús científic) fora dels locals de l'entitat d'investigació.

b) No permetré que usuaris no autoritzats accedeixin al conjunt de dades.
c) No tractaré d'identificar cap registre individual (persona, llar, empresa, etc.) en el conjunt de dades, ni afirmaré que ho he fet.
d) No publicaré o divulgaré cap informació o resultat que identifiqui qualsevol registre individual o que pugui conduir a la identificació de qualsevol registre individual.
e) Facilitaré canals de comunicació eficients per a que qualsevol qüestió relativa a la coordinació del Programa d'Alumnes Sentinella pugui esser resolta en el menor temps possible.
f) En cas de rebre la notificació de que hi ha hagut una violació de les normes de confidencialitat establertes en el compromís de confidencialitat o en les condicions d'ús de les dades confidencials amb finalitats científiques, procediré a apartar a la persona responsable de l'estudi i programa i iniciar les mesures sancionadores oportunes.
g) En cas de rebre una notificació de necessitat de substituir un alumne sentinella o professor/a col·laborador/a, procediré a iniciar el tràmit amb la major celeritat possible.
h) En cas de rebre una notificació de situació de risc d'algun alumne que participi al programa, procediré a valorar la interrupció de la seva participació en el programa o del programa en la seva totalitat, a més de iniciar la derivació als serveis assistencials competents.
i) Mantenir reunions periòdiques, amb un mínim d'una reunió cada tres mesos de manera individual o grupal amb els sentinelles i els professors/es col·laboradors per a coordinar el programa i facilitar la solució de qualsevol situació que pugui esdevenir.

Declaro que he llegit totes les clàusules anteriors, que sóc responsable de l'ús correcte de les dades i del sistema d'accés a aquestes, i que, si no compleixo amb aquestes clàusules, se'm retirarà l'accés al conjunt de dades i seré responsable de qualsevol altra sanció que pot determinar el meu centre de recerca.

Signatura de l'investigador.

Girona, ... d..... de .....

Annex 15: Ethics and Biosafety Committee in Research at the University of Girona Approval.

Universitat de Girona

DICTAMEN DEL COMITÈ D'ÈTICA I BIOSEGURETAT DE LA RECERCA DE LA UNIVERSITAT DE GIRONA

Nom projecte: Efficacy and security of a student-based program on the prevention of depression, anxiety and burnout syndrome in medical students: The Sentinel Student Program Trial

Codi projecte: CEBRU0042-23

Investigador: Jesús Marí Gorreto

Helena Montiel Boadas, secretària del Comitè d'Ètica i Bioseguretat de la Recerca de la Universitat de Girona,

FAIG CONSTAR :

Que en la sessió ordinària número 9/2023 que va tenir lloc el dia 23 d'octubre de 2023, el Comitè d'Ètica i Bioseguretat de la Recerca de la Universitat de Girona va avaluar el protocol del projecte "Efficacy and security of a student-based program on the prevention of depression, anxiety and burnout syndrome in medical students: The Sentinel Student Program Trial" i va considerar per unanimitat que compleix els requeriments ètics i de bioseguretat exigibles.

Que és responsabilitat dels investigadors que la recerca es realitzi tal i com descriu la documentació presentada. Qualsevol canvi significatiu ha de ser comunicat al Comitè, la qual cosa requerirà una nova valoració.

Per la qual cosa, s'emet aquest dictamen favorable.

Helena Montiel Boadas

Secretària del Comitè d'Ètica i Bioseguretat de la Recerca de la Universitat de Girona

Signat electrònicament per :Helena Montiel Boadas - (TCAT) Data :2023.10.23 14:43:50 CEST

Annex 16: Extended version of Table 7: Comparative Analysis between Stayers and Leavers.

Table 7 Extended: Comparative Analysis between Stayers and Leavers

	Stayers	Leavers	p value
	N=132	N=50	
Sex:			0.766
Female	103 (78.6%)	41 (82.0%)	
Male	28 (21.4%)	9 (18.0%)	
Gender:			0.336
Female	102 (78.5%)	39 (79.6%)	
Male	28 (21.5%)	9 (18.4%)	
Others (Non-Binary, Gender Fluid, …)	0 (0.00%)	1 (2.04%)	
Sexual Orientation:			0.275
Bisexual	21 (16.7%)	7 (14.6%)	
Heterosexual	99 (78.6%)	36 (75.0%)	
Homosexual	4 (3.17%)	5 (10.4%)	
Others	2 (1.59%)	0 (0.00%)	
Living Situation:			0.483
Living with parents or other close relatives	36 (27.9%)	13 (26.5%)	
Living in a shared flat with other university students	81 (62.8%)	28 (57.1%)	
Living in a student's boarding house	7 (5.43%)	6 (12.2%)	
Living alone	5 (3.88%)	2 (4.08%)	
Age:	21.0 (2.59)	20.7 (3.12)	0.479
Relationship:			0.137
In an open relationship (polygamy)	2 (1.54%)	2 (4.17%)	
In a closed relationship (monogamy)	59 (45.4%)	15 (31.2%)	
Single	69 (53.1%)	31 (64.6%)	
Employment:			0.194
Without employment	110 (88.0%)	36 (78.3%)	
Working full-time	2 (1.60%)	1 (2.17%)	
Working part-time	13 (10.4%)	9 (19.6%)	
Financing:			0.594
Funded with scholarship	26 (20.0%)	13 (27.1%)	
Funded by parents	93 (71.5%)	32 (66.7%)	
Self-funded	11 (8.46%)	3 (6.25%)	
CCAA:			0.952
No	41 (32.8%)	17 (34.7%)	
Yes	84 (67.2%)	32 (65.3%)	
Healthcare working parents:			0.943
No	101 (77.7%)	39 (79.6%)	
Yes	29 (22.3%)	10 (20.4%)	
Year/Grade:			0.014
1º	22 (16.8%)	18 (36.7%)	
2º	18 (13.7%)	8 (16.3%)	
3º	37 (28.2%)	10 (20.4%)	
4º	21 (16.0%)	9 (18.4%)	
5º	33 (25.2%)	4 (8.16%)	
Mental health disorder family history:			0.488
No	61 (49.2%)	25 (56.8%)	
Yes	63 (50.8%)	19 (43.2%)	

Global Health:			0.013
Excellent	15 (11.9%)	9 (18.8%)	
Very Good	70 (55.6%)	15 (31.2%)	
Good	29 (23.0%)	15 (31.2%)	
Fair	12 (9.52%)	7 (14.6%)	
Bad	0 (0.00%)	2 (4.17%)	
Sum of Vital Events (Midtgaard's List)	0.99 (1.21)	0.98 (1.33)	0.954
OSSS-3 score	10.6 (1.83)	9.62 (1.91)	0.003
OSSS-3 recoded:			0.009
Moderate social support	68 (54.4%)	27 (56.2%)	
Poor social support	16 (12.8%)	14 (29.2%)	
Strong social support	41 (32.8%)	7 (14.6%)	
AUDIT-3 score	2.52 (1.36)	2.83 (1.52)	0.299
AUDIT-3 recoded:			0.726
No AUD risk	87 (84.5%)	28 (80.0%)	
AUD risk	16 (15.5%)	7 (20.0%)	
DAST1	0.22 (0.42)	0.26 (0.44)	0.657
Mental health diagnosis	0.18 (0.39)	0.29 (0.46)	0.176
Mental health treatment	0.25 (0.43)	0.30 (0.47)	0.477
MAAS score	3.80 (0.86)	3.78 (0.92)	0.933
SMBM total	3.22 (1.22)	3.17 (1.17)	0.798
SMBM recorded:			1.000
No Severe Burnout	96 (80.0%)	35 (79.5%)	
Severe Burnout	24 (20.0%)	9 (20.5%)	
PHQ-9 score	8.63 (5.33)	9.19 (5.77)	0.581
PHQ-9 recoded:			0.918
Depression	56 (47.5%)	21 (50.0%)	
No depression	62 (52.5%)	21 (50.0%)	
GAD-7 score	8.69 (5.28)	9.00 (6.32)	0.775
GAD-7 recoded			0.453
Anxiety	40 (33.1%)	18 (40.9%)	
No anxiety	81 (66.9%)	26 (59.1%)	
Medical School Environment	2.38 (0.93)	2.79 (1.15)	0.038
MHS Knowledge:			0.522
No	100 (82.6%)	38 (88.4%)	
Yes	21 (17.4%)	5 (11.6%)	